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# ZOOLOGICAL SOCIETY

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PART II.

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CONTAINING ELEVEN PLATES.

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rent. The first and last dorsal spines are much shorter than the corresponding ones of *carponemus*, and the notch of the fin is conspicuous from the greater height of the soft rays. The second anal spine is very stout, and it rather exceeds the third one in length. The preorbitar is smaller than in that species, and its length does not exceed the diameter of the orbit. The face is therefore shorter, and the profile rises more steeply to the dorsal, owing to the greater height of the fish. The elongated pectoral ray, which is the tenth, reaches no farther back than the beginning of the anal. The scales are rather large and much tiled. About fifty-two exist on the lateral line, besides six or seven rows on the base of the caudal, and there are twenty-two rows in the height of the fish.

Mr. Lempriere, from whom we had the specimens, says that the fish is known at Port Arthur under the name of "the Perch," and has a bright silvery hue with dark spots. The specimens still exhibit many dark brown spots scattered thickly on the back and more sparingly on the sides, most of them being rather smaller than the exposed disk of a scale. The vertical fins, particularly the caudal, are more minutely spotted. The top of the gill-cover is blackish, and there is a dark mark on the humeral bone. As is usual in the genus, the inside of the mouth and lining of the gill-opening are purplish-black. Length $12\frac{1}{4}$ inches. Greatest height $3\frac{2}{3}$ inches.

The *Cheilodactylus carmichaelis* (Hist. des Poiss. v. 360) (*Chætodon monodactylus*, Carmichael, Linn. Trans. vol. xii. p. 500. pl. 24) approaches *aspersus* in shape, in the length of its long pectoral rays, and in the number of fin rays generally, but it is distinguished by six short, broad dark bars on the back. The formula of its rays is as follows :—*Radii.*—Br. 6 ; D. 17|24 ; A. 3|12 ; P. 9 et VI. ; V. 1|5, Carmichael.

The *Cheilodactylus fasciatus* (Cuv. et Val. v. 357) of the Cape is distinguished by four or five vertical dark bands and five transverse lines on each lobe of the caudal. Its rays are stated to be :—

*Radii.*—Br. 5 ; D. 19|23 ; A. 3|11 ; C. 17 ; P. 10 et V. ; V. 1|5. Hist. des Poiss.

### CHEILODACTYLUS GIBBOSUS, Solander. (*Chætodon.*)

Chætodon gibbosus, *Banks, Icon. Parkins. ined.* t. 23.
Cheilodactylus gibbosus, *Richardson, Zool. Trans.* vol. iii. p. 102.
*Radii.*—D. 17|36 ; A. 3|8 ; C. $14\frac{4}{4}$ ; P. 8 et VI. ; V. 1|5, spec.

(Pisces, Pl. II. fig. 3, 4.)

This fish inhabits the seas of Van Diemen's Land and the east coast of New Holland, as well as King George's Sound. A full description of it is contained in the 'Zoological Transactions' quoted above. It has the highest spinous dorsal of any described species of *Cheilodactylus*, and in the distribution of its black bands it bears a considerable resemblance to *Eques americanus*.

Mr. Neill gives a drawing of it (No. 24), and states that it is known to the aborigines of King George's Sound by the name of

"Knelvek." The natives spear it on sandy banks, but say that it is rare. Its scales are smooth, and the second and third anal spines are moderately long and equal to each other. The suboperculum is narrow, and together with the other opercular bones and cheek is scaly.

The figure is one-third of the size of the specimen. The scale is magnified. A considerable part of its disk retains the small asperities or ptenoid teeth, which do not however extend to the margin of the scale, that being, as is usual in the genus, thin and membranous.

### Cheilodactylus nigripes, Richardson.

*Radii.*—Br. 6; D. 18|26; A. 3|10; C. $13\frac{6}{6}$; P. 7 et V.; V. 1|5, spec.

The aborigines of King George's Sound had no name for this species, and no drawing of it was made by Mr. Neill. The only specimen of it obtained was speared by a native named Murrianne, and measures 13 inches in length. It has a conical eminence on the prefrontal bone, like that existing in *Ch. gibbosus*; its face is short, with the profile ascending almost as much as in the species just named. The length of the preorbitar is rather less than the diameter of the orbit, the eye is placed midway between the gill-opening and mouth, and the interoperculum is only about half as wide as the disk of the preoperculum. The cheek and all the pieces of the gill-cover are densely scaly. The second of the simple pectoral rays is the longest and it falls short of the anus, while only about one-third of its length projects beyond the membrane. The spinous part of the dorsal is arched anteriorly. Its fifth and longest spine rather exceeds one-third of the height of the body. The preceding ones are graduated to the first, whose height is only a fifth part of the fifth one, but the decrease of the posterior spines is much less rapid, the last one having half the length of the fifth. The soft rays rise to nearly twice the height of the posterior spines, rendering the fin notched. The third anal spine is somewhat longer than the second one, which is stouter, but the spines generally are of moderate thickness, and are compressed. The caudal is forked to half its depth. The ventral spine is long and slender. The scales are without asperities, and the exposed part of their disk exhibits the concentric rings of structure distinctly. About sixty-one exist in a row between the gill-opening and caudal, exclusive of three or four on that fin. The teeth on the jaws are slender and closely set.

In the dried specimen the ventrals are pitch-black, and the other fins are nearly equally dark. The body is also dark, but in the absence of drawings or descriptions of the recent fish we cannot state its proper tints.

### Cheilodactylus zonatus, Cuv. et Val.

Cheilodactylus zonatus, *Cuv. et Val.* vol. v. p. 365; *Rich. Rep. Brit. Assoc.* 1845, p. 239.

*Radii.*—D. 17|31; A. 3|8; C. $14\frac{5}{5}$; P. 8 et VI. spec.

This fish, which is common to the China and Australian seas, appears to be called the "Zebra-fish" by the sealers who frequent

King George's Sound, though that name is most generally appropriated by them to the *Crenidens zebra.* Its prefrontal bone projects behind the nostril, but not so acutely as in *Ch. nigripes* or *gibbosus.* There is however a difference in this respect in different individuals. The width of the interoperculum is about half that of the preopercular disk, and these bones and the cheek are densely scaly. The scales of the cheek however are imbedded in spongy porous skin. The length of the preorbitar equals the diameter of the orbit. In the relative sizes of the opercular bones and preorbitar, and in the form of the dorsal, *zonatus* and *nigripes* closely resemble each other, but there is a difference in the anal spines, in the rays of the pectoral, in the shape of the caudals, that of *zonatus* being only sparingly excavated, and a striking one in the colours.

The dried specimen of *zonatus* shows very distinctly eight dark oblique bars on the body, the first crossing the nape and the last the base of the caudal, the intermediate pale spaces being equal to the bars in breadth. The entire head, including the preorbitar, is thickly marked by round dark spots of the size of duck shot. There are large spots on the caudal, which are so crowded on the margin of the fin as almost to form a continuous bar. Two or in some parts more rows traverse the dorsal, and there are dark marks on the tips of the anal and ventrals. The simple rays of the pectoral are orange. Mr. Reeves's drawing of the Chinese fish represents it as dressed in very lively colours during the breeding season.

The dorsal is highest at the fifth spine, as in *zonatus*, and is in other respects similar in form; but the anal spines are shorter, especially the second, which is also stouter in proportion. Rather less than one-third of the longest pectoral ray projects beyond the membrane, and the membrane is less deeply notched between the other simple rays than in *nigripes.* The scales differ from those of the last-named species, being finely granulated on the disk, as in *nigricans.*

The rays are somewhat differently enumerated in the 'Histoire des Poissons,' from a Japanese specimen. *Radii.*—Br. 6; D. 17|29; A. 3|8; P. 9 et V.; V. 1|5, Cuv. et Valenc.

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The *Cheilodactylus brachydactylus* (Hist. des Poiss. p. 361) of the Cape approaches more nearly to our examples of *zonatus* in the numbers of the rays, but it does not appear to possess the prefrontal prominence, and has no other markings than a triangular black mark behind the eye. *Radii.*—Br. 5; D. 17|31; A. 3|9; C. 17; P. 8 et V.; V. 1|5, Cuv. et Valenc.

*Cheilodactylus ciliaris,* Richardson, Zool. of the Voy. of the Erebus and Terror, p. 37. pl. 26. fig. 6, 7 (*Latris; Sciæna ciliaris,* Forster, &c.), is a species which is allied to the following ones, in the shortness of its simple pectoral rays.

### CHEILODACTYLUS HECATEIUS, Richardson.

Latris hecateia, *Richardson, Zool. Trans.* p. 106. tab. 6. f. 1.

*Radii.*—Br. 6; D. 18|36; A. 3|27; C. $16\frac{6}{6}$; P. 9 et IX.; V. 1|5, spec.

In the account of this species quoted above, I expressed doubts of the rank of *Latris* as a subdivision of the *Cheilodactyli*; but now that I have had an opportunity of examining a more complete gradation of specific forms, I am not disposed to think that it merits to be considered even a subgenus, though the non-prolongation of one of the pectoral rays (usually the tenth) makes it a convenient division of the *Cheilodactyli*, now known to be numerous.

This species inhabits the seas of Van Diemen's Land.

### Cheilodactylus lineatus, Forster (*Sciæna*).

Cichla lineata, *Schneider*.

Sciæna lineata, *T. R. Forsteri Descr. Anim.* p. 134. An. 1844; *Fig. pict. Georg. Forsteri in Bibl. Banks. servata.*

*Radii.*—Br. 6; D. 18|36; A. 1|26; C. 30; P. 17; V. 1|5, Forst. *l.c.*

This species agrees nearly with the preceding in the numbers of its fin rays, except that Forster says expressly that it has only one anal spine. It has also four dark dorsal stripes, with three intervening silvery ones; but it differs from *hecateius* in the yellowish colour of its fins, and particularly of its caudal, which obtained for it the appellation of "Yellow-tail" from the sailors. It frequents, like the other *Cheilodactyli*, rocky places, was captured by Cook's sailors with the hook, and was much approved as an article of food. It is a native of the seas washing the southern island of New Zealand. Length of specimen described by Forster, 24 inches.

Having seen no specimens we cannot institute a correct comparison with *hecateius*.

## Threpterius, Richardson.

(Θρεπτήριος, *ad alendum idoneus.*)

Genus piscium acanthopterygiorum *Cheilodactylis* affine. Corpus catheto-plateum, ovato-oblongum, squamosum. Caput aliquantulum parvum, cute porosâ tectum, absque spinis, angulis vel aciebus serratis osseis. Os ut in *Cheilodactylis* extensibile. Dentes in premaxillaribus, mandibuiâ trigonioque vomeris unâ serie instructi, brevissimi, parvi, subconici. Ossa palatis lævia. Genæ craniumque esquamosæ. Os preorbitale angustum. Operculum subtriangulare squamis tectum. Membrana branchiostega radiis sex curvis, satis validis sustentata. Squamæ læves nec dentatæ; linea lateralis recta. Radii pinnarum pectoralium inferiores simplices. Pinna dorsi e nuchâ ferè usque ad caudæ pinnam regnans, squamulis apud radios instructa, membranâ inter spinas profundè emarginatâ; lobulo tamen membranaceo e summis spinis pendente. Pinnæ ventrales thoracicæ sed a gulâ paulo remotæ.

The characters are deduced from dried specimens, and the pharyngeal teeth and structure of the intestinal canal are unknown. The jaw teeth are not strictly disposed in a single row, since a few minute ones form a row behind the others in front of the premaxillaries; but these can scarcely be visible in the recent fish. The chevron of the vomer is acute and projects a little. The orifice of the mouth is rather larger than in the *Cheilodactyli*, but the jaws are extensible in about the same degree. The maxillary bone wants the flat thin plate near its head which exists in the *Cheilodactyli* and glides beneath the preorbitar. The latter bone is narrow, its width not being equal to one-third of the diameter of the orbit. The eye is comparatively large, three diameters and a half of the orbit being equal to the entire length of the head, and two of these diameters measure the distance between the hinder edge of the orbit and the tip of the gill-cover. The position of the eye is high enough to encroach upon the profile. The cheek equals the diameter of the orbit in breadth; the disk of the preoperculum is also wide, and the interoperculum moderately so. The operculum and suboperculum conjointly have a triangular form; the former is notched, and the latter is prolonged by a membranous tip, which forms the apex of the gill-cover. Both these bones are densely scaly; there is also a row of scales on the interoperculum, partially overlaid by the thin edge of the preoperculum, and the temples are also scaly. The rest of the head is without scales, but the mucous skin, full of canals and pores, which envelopes the head, prevents us from ascertaining the exact extent of the scales, at least in the dried specimens. The top of the head is destitute of scales to the occiput, but in the *Cheilodactyli*, dense, small scales extend forward on the skull to before the eyes. In the absence of thick fleshy lips, the genus differs from *Cheilodactylus*. The preorbitar is neither wide enough nor long enough to conceal the maxillary, which however enters partially beneath its edge. The thin crescentic border of the preoperculum is striated, but not crenated. The same kind of streaks or furrows may be discerned, though not so readily, in some *Cheilodactyli*. The head forms a fourth of the total length. The height of the body is also equal to a fourth of the length of the fish, caudal included. The belly is prominent, and the tail, posterior to the vertical fins, is slender. The lateral line is straight, and each of its scales is marked by a short straight tube, which is placed somewhat obliquely to the general direction of the line. About fifty-two scales compose a row between the gill-opening and caudal, the base of whose rays are also scaly, and the lateral line is prolonged as far as the scales extend on that fin.

The dorsal commences over the upper angle of the gill-opening and reaches to within an inch of the caudal. Its seventh spine, which is the tallest, is nearly equal to half the height of the body; the others are graduated very slightly posteriorly and more rapidly anteriorly. None of them are stout, and all of them are traversed on each side by a deep furrow. The membrane between them is deeply notched, as in the genus *Pelors*, and a slender process running up the back of each spine surmounts it in form of a small free lobe. The soft rays surpass the tallest spine a little, and are more than twice the height of the last one. The anal commences opposite to the beginning of the soft portion of the dorsal and ends beneath its tenth branched ray, or, in the specimens before us, about two inches and a half from the caudal. The spines are like the dorsal ones, grooved and slender, and the second one, which is scarcely shorter than the third, is not quite twice as long as the first one. The seven inferior simple rays of the pectoral have free tips, their membrane being deeply notched as in the dorsal. The ventrals are attached under the middle of the pectorals, or opposite to the sixth dorsal spine. Their spine is slender, and about two-thirds of the length of the soft rays. The caudal is rounded, with the tips of the rays projecting beyond the membrane.

**THREPTERIUS MACULOSUS**, Richardson.

(Pisces, Pl. II. fig. 1, 2.)

This fish approaches the division *Latris* of the *Cheilodactyli* in the form of its pectoral fin and other characters, but differs so much in its general aspect, which reminds one of a cottoid fish, that it is well that we can find a structural difference which enables us to place it in a separate genus. This exists in the vomerine teeth, the vomer being smooth in the *Cheilodactyli*, but in this fish it is armed like the jaws by a single row of teeth, which, instead of being setiform and crowded, as in the *Cheilodactyli*, are short, somewhat conical, and confined nearly to a single row on the jaws as well as on the vomer.

The native name of the fish at King George's Sound is "Cūmbeŭk," and it frequents rocky places, having apparently the same habits with the *Cheilodactyli*. The simple projecting rays of the pectoral would appear to perform the functions of an organ of touch, and are furnished to many fish that, like the *Triglæ*, swim close to the sandy bottom, which they touch with these simple rays, whether they are wholly or partially free. The Cūmbeŭk is prized as an article of food, whence the generic name.

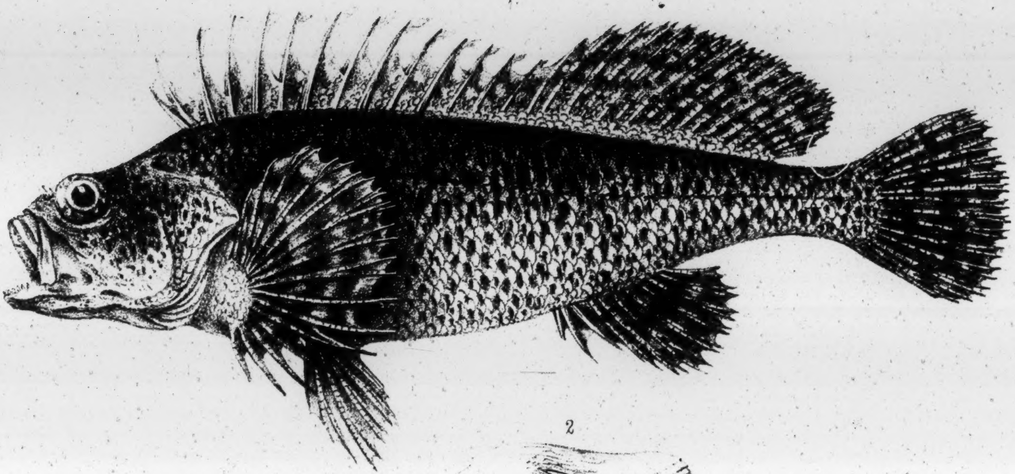
Mr. Neill's figure represents the fish as having a pale brown colour, much lighter on the belly, and thickly studded with irregular dark liver-brown spots, most crowded along the back and becoming much smaller and more scattered on the belly. The fins are rather of a redder brown, and the soft dorsal, ventral and caudal are minutely spotted. Length 9 inches.

**TAUTOGA PARILA**, Richardson.

Paril and "Common Rock-fish," *Neill's drawings*, No. 9; *Richardson, Ichth. Erebus and Terror*, p. 127, *sub* Labro fucicolâ.

*Radii.*—Br. 6; D. 9|11; A. 3|10; C. 13$\frac{4}{4}$; P. 13; V. 1|5, specimens.

This species of *Labrus* or *Tautoga* approaches *Labrus tetricus* (Ichth. of Erebus and Terror, pl. 55. f. 1) in general form, but there is only a single row of scales on the temples, and they do not descend lower than the middle of the upper limb of the preoperculum. The scales covering the operculum and suboperculum are, as in the allied species, large. The cheek, preoperculum and the broad thin interoperculum show no scales, but, in common with the top of the head, are covered with a thick skin full of mucous canals and open pores. The diameter of the orbit is less than the length of the preorbital,



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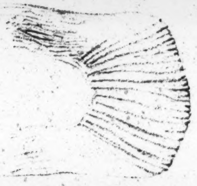

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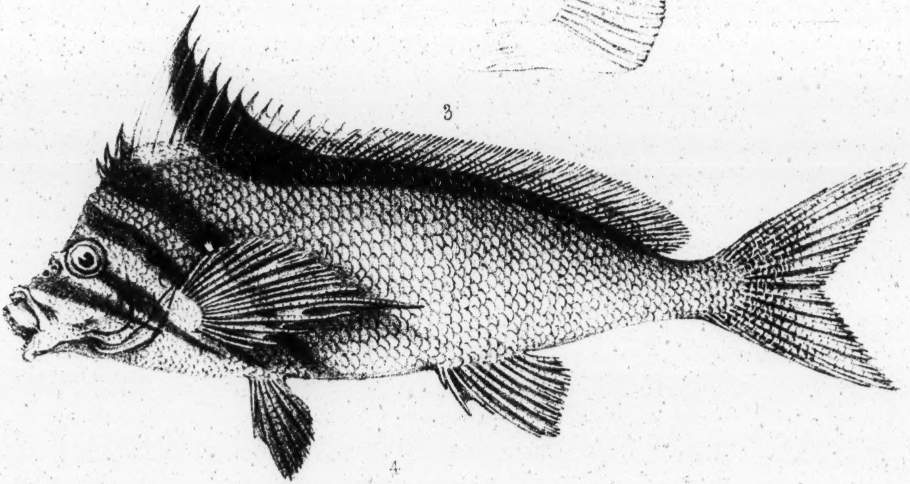

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[illegible] MACULOSUS.
[illegible] GIBBOSUS.

and is contained five times and a half in the length of the head when the jaws are retracted. The preorbitar lips are only slightly developed, but the intermaxillary and mandibular ones are thick and plaited. Teeth arranged in each jaw in a series gradually decreasing towards the angle of the mouth, the anterior pair above and below being considerably larger and more curved. In the upper jaw there is a complete interior series of small rounded teeth which are on a level with the soft parts. On the mandible the interior row is confined to the fore-part of the jaw, and is less regular. The tubular ramifications on the scales of the lateral line are more numerous and crowded than in *L. tetricus*, or any of the other Australian species figured in the 'Ichthyology of the Erebus and Terror.' There are twenty-four scales on the lateral line having these clusters of tubes, and the clusters do not diminish in size towards the tail, though one or two less bushy occur under the soft dorsal. The line is as usual suddenly bent downwards under the end of that fin.

In the dried skins dark brown lines radiate from the orbit over the temples, cheek, and preorbitar, and there are dark spots on the jaws, top of the head and gill-plates. There are also some white blotches and bars on the cheek, preoperculum, interoperculum and lower jaw. The body is variegated with brown spots, crowded along the back, more scattered on the sides, and mixed with small round dots of the same tint. The dark marks extend to all the vertical fins. These spots have an umber-brown colour in Mr. Neill's drawing.

No. 37 of the same drawings represents the "Black-fish of the sealers" and the "Paril" or "Knhoul" of the natives, which is considered to be a variety of the preceding. There is no specimen of it in the collection, but it has the back and upper part of the sides thickly sprinkled with reddish-brown dots without any larger spots. This variety or species is said to grow to the size of 15 or 20 lbs.

### Cossyphus vulpinus, Richardson.

*Radii.*—Br. 4; D. 12|11; A. 3|12; C. $14\frac{2}{2}$; P. 16; V. 1|5, spec.

The height of the body is one-fourth of the total length of the fish, caudal included, and is about equal to the length of the head.

The profile rises in a slightly concave line from the acute snout to opposite the back part of the orbit at an angle of 30°. From thence to the beginning of the dorsal, which stands as far back as the axil of the ventrals, the line is almost horizontal, and judging from the dried specimen the dorsal ridge there is acute. When the jaws are protracted the face has a hollow profile, and the strong series of teeth give it a sinister look. There are two pairs of canines at the extremities of the upper and under jaws, the upper ones being inclined forwards, and also a canine at the corner of the mouth, which is bent outwards. The smaller teeth are rather widely set, and there are six of them on each maxillary and fourteen on each limb of the lower jaw; and of the latter the middle ones are somewhat longer than those towards each end of the jaw. Within the front teeth on both jaws there is a flat naked surface of bone fitted for grinding or crushing, and more interiorly a few minute granular teeth scarcely protruding from the bone. The cleft of the mouth extends backwards to the front of the preorbitar bone, and is equal to the distance between the corner of the mouth and the eye.

The preorbitar is covered with smooth skin, presenting an even surface in the recent fish, but in the skeleton it presents three deep notches anteriorly, separated by linear processes. The rest of the suborbitar chain is narrow. The upper limb of the preoperculum is finely serrated, the serratures disappearing on the rounded angle. The disk of that bone, the other opercular pieces, the cheeks, temples and suprascapulars are scaly, but there are no scales on the limbs of the lower jaw, in which respect the species differs from the *Cossyphus maldat* of the 'Histoire des Poissons,' to which it has some resemblance in general form. There are six rows of scales on the cheek and as many on the interoperculum; the scales on the disk of the preoperculum are smaller than these, and those covering the operculum and suboperculum are considerably larger. The naked part of the scales exhibits little pits rather than granulations. There are thirty scales on the lateral line, each carrying a simple tube with its point turned upwards. The tube is more branched in *C. maldat*. There is no sudden bend in the lateral line, but it descends gradually under the soft dorsal rays to the middle height of the tail, on which there are eight rows of scales.

The anal and dorsal fins move in scaly sheaths, which are broadest on the soft rays. The spinous rays are strong, tapering, and acute. The first dorsal spine stands over the axil of the ventrals; and the ventral spine, which is as tall as the last and longest dorsal one, stands beneath the base of the lowest pectoral ray. The soft parts of the anal and dorsal are somewhat peaked, and rise above the spines. These two fins end exactly opposite to each other, and leave a considerable space of naked tail behind them. The angles of the caudal project a little beyond the straight intermediate border. The colours of the specimen have faded. Length 16 inches.

**Cossyphus gouldii**, Richardson.

Labrus gouldii, *Rich. Ann. & Mag. Nat. Hist.* xi. p. 353.

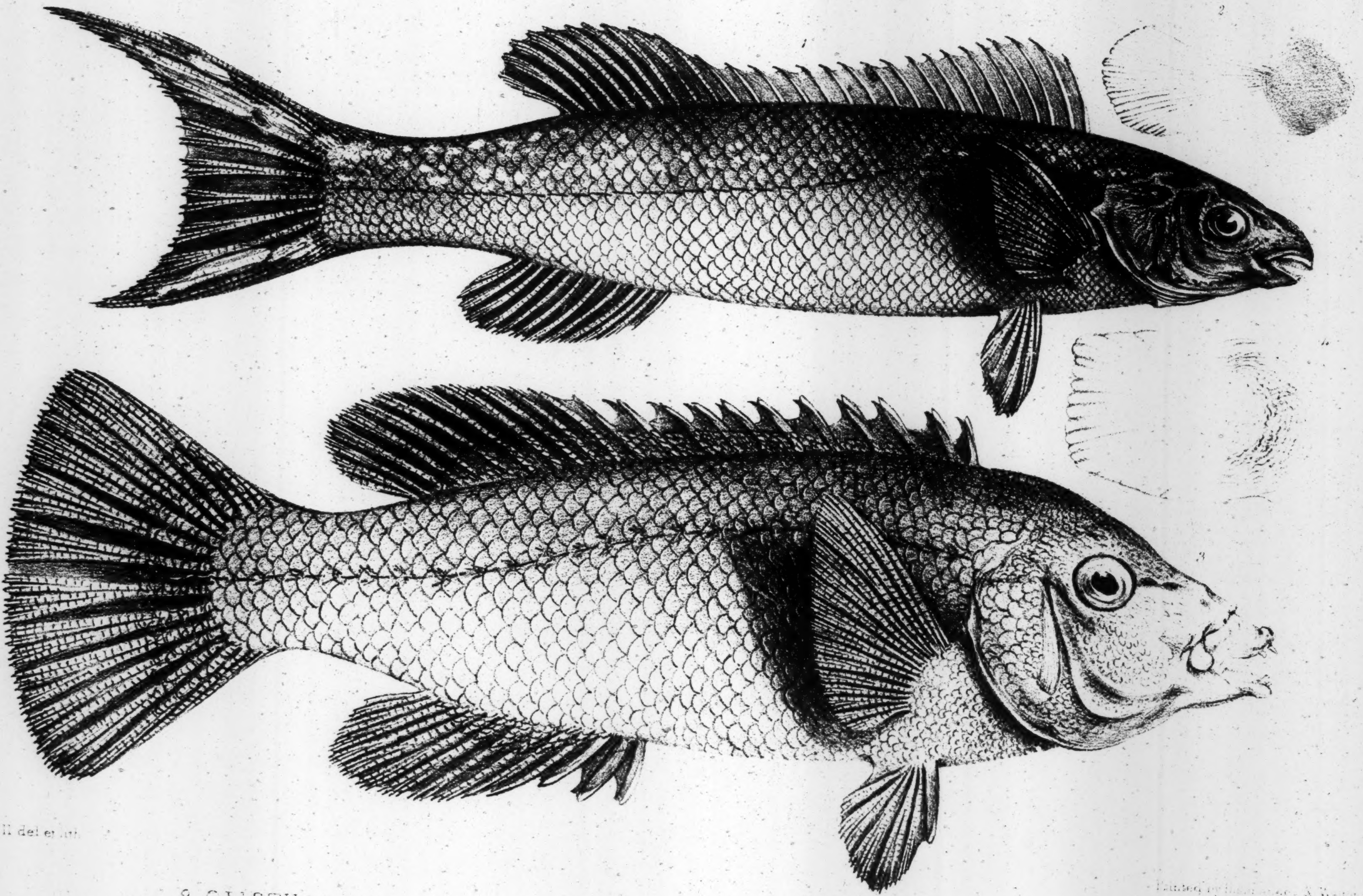
Cossyphus, *vel* Lachnolaimus gouldii, *Idem, Ichth. of Voy. of Erebus and Terror*, p. 132.

*Radii.*—D. 11|10 vel 11; A. 3|10 vel 11; C. $14\frac{3}{3}$; P. 17 vel 16; V. 1|5, spec.

(Pisces, Pl. III. fig. 3, 4.)

Mr. Neill's collection contains a young specimen of this fish, which was previously known to me only by an example of considerably greater size, brought from Western Australia by Mr. Gould. Neither specimen retained the pharyngeal bones, and I still remain in doubt as to which of the dismemberments of the Linnæan genus *Labrus* it ought to be referred.

It has the general form of *Labrus*, with the scaly dorsal and anal sheaths of *Cossyphus*, and a peculiarity in the very compressed form of the spinous rays which I have not as yet seen in any other Laboroid. It has the four anterior canines in each jaw which exist in



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1. 2. OLISTHOPS CYANOMELAS. 3. 4. COSSYPHUS GOULDII.

some *Cossyphi*, and on the mandibles these canines are inclined forward like the corresponding teeth in *Anampses*. There are no canines at the angle of the mouth. The lateral teeth are incorporated with the bone, and are small and uniform, not decreasing in succession, as in the *Labri*. In the young specimen the bone of both jaws is thin, and the forms of the lateral teeth are distinctly seen, cemented laterally to each other, with a few very minute granular teeth scattered on the interior surface of the bones; but in the older specimen the premaxillaries have swollen behind the canines and acquired a smooth surface by friction, and the edges of the jaws having worn down the forms of the teeth composing them, are obscured—their rounded points alone being visible. On the other hand the granular teeth on the sides of the jaws have become more conspicuous in consequence of their growth.

The cleft of the mouth is small, not exceeding the diameter of the eye. The length of the preorbitar is greater. The latter bone and the suborbitar chain, with the lower jaw and top of the head, are scaleless. The edge of the preoperculum is quite smooth, and its disk appears to be scaleless, but there are nine rows of small scales on the cheek, and the other gill-pieces are scaly, those on the operculum and suboperculum being larger than the rest. The uncovered disks of the scales of the body are rough, with small round points, the edges being thin, membranous, and striated or wrinkled. The descending curve of the lateral line under the soft dorsal is the gradual one of a *Cossyphus*, not the more sudden deflection of a *Labrus*. Each of the scales composing it has a loose arbuscle of sparingly branched tubes.

The dorsal spines are strong and comparatively short, and the anterior ones are compressed so as to render their front edges acute. The compression diminishes in the posterior spines, and the last and tallest one is subulate, grooved and pointed. The foremost two anal spines are even more conspicuously compressed, and the third one is subulate. The ventrals are rounded, and have a compressed spine which stands under the second and third dorsal spines and base of the pectoral—being farther forward than in *Cossyphus vulpinus*.

This fish is represented as having a dark purplish colour, and is said by Mr. Neill to bear the names of "Koojenuck," "Quejuinuck," or "Knowl," among the aborigines of King George's Sound. It attains the weight of 28 or 30 lbs. It is described more at length in the 'Ichthyology of the Voyage of the Erebus and Terror,' quoted above.

JULIS CYANOGRAMMA, Richardson.

*Radii.*—D. 9|13; A. 3|13; C. 12¾; P. 13; V. 1|5, spec.

This species is the "Knelmick" or "Kielnmick" of the aborigines frequenting King George's Sound, and the "Common Rock-Cod" of the sealers. It is also an inhabitant of New South Wales, specimens of it having been sent to the Museum at Haslar by Mr. Miles. Its flesh is little prized.

In the numbers of its fin rays it comes near *Julis dussumieri*, but differs from it in having smaller scales, in form and in colours; nor have I been able to refer it to any described species. Its body is elongated; its height, which is not equal to the length of the head, being contained five times and a half in the total length of the fish, caudal included. The compression of the head is considerable, its thickness not exceeding half its height, and the occiput and nape are acute. The length of the preorbitar is considerably greater than the diameter of the eye, and the cheek and interoperculum are both high. There are no scales on the temples or any other part of the head. There are fifty scales on the lateral line, each marked by six or seven short, simple, diverging tubes. The lateral line is bent downwards under the ninth, tenth and eleventh soft rays of the dorsal; it is otherwise straight, and runs near the back. The dorsal commences far forward, over the top of the gill-cover, and runs back with an even outline; its tip, which is acute, though not prolonged, reaching, when laid back, to the base of the caudal. Its spines, as well as those of the anal and ventrals, are flexible and very slender. The pectorals are not large, and the ventrals have tapering, acute, but not filamentous tips. They stand under the base of the lowest pectoral ray. The caudal is moderately rounded, and it is scaly between the rays for more than one-third of its length.

When the open mouth is viewed in front, its teeth form a rhomb; the front pair of teeth above and below are comparatively large and are curved. There is also a small curved tooth standing forwards from the angle of the mouth.

Mr. Neill's drawing represents this fish as having an aurora-red ground colour on the head, back, dorsal and anal fins, the fins being of the deepest tint. The head is ornamented by deep blue lines, which are distinctly visible on the dried specimen. These all form curves more or less bold, with the convexity forwards. The anterior one begins on the nose, runs forward to the lips, and inclines backwards again on the lower jaw; the next descends from the nostrils over the disk of the maxillary and posterior part of the lower jaw. Two descend from the orbit over the interoperculum, and there are some finer intermediate ones which vanish on the cheek. There are also about six slender lines on the gill-cover, which are thickened on the suprascapular region. The body is traversed by seven or eight rows of short blue lines, which on the tail are superseded in part by dots. The dorsal and anal have about three rows of these short lines, and the caudal, which is reddish-orange, is streaked longitudinally with blue. The pectoral and ventrals are flesh-coloured.

Length of specimen 12½ inches.

## OLISTHOPS, Richardson.

(*Olisthops*, ex ὀλισθηρὸς, *lubricus*, et ὦψ, *vultus*.)

Genus generis *Odacis* affine. Caput totum cute lubricâ, esquamosâ tectum (squamulæ quatuor tantum inconspicuis regioni suprascapulari utrinque insidentes). Labia simplicia cum cute faciei continua, labia preorbitalia nulla. Dentes cum ossibus lunatis premaxillaribus mandibulisque, modò *Scarorum* ferruminati. [Ossa pharyngea ab exemplaribus nostris excisa, hinc nobis ignota.] Squamæ cyloideæ. Linea lateralis simplex, e tubulis rectis facta, continua; anticè arcuata, posticè recta. Pinna dorsi unica, prope humerum incipiens, in parte spinosa, modo proprio, emarginata; radiis spinosis apicibus flexilibus. Pinnæ ventrales sub axillis pectoralium positæ. Membrana branchiostega in gutture continua, utrinque radiis quatuor sustentata.

The general form of this fish has been known to me for some years by the accurate drawing of Mr. Neill. It is an inhabitant of King George's Sound in Australia, where it is recognised by the natives under the name of "Toobitoet," or "Toobitooit," and it is said to inhabit rocky places and to be rarely captured. In the construction of its jaws and in general form it approaches most nearly to *Odax*, but it differs from that genus, and still more from *Scarus*, in the want of scales on the head, the single lips, and in the unusual form of the dorsal. The subjoined description is drawn up from a specimen prepared by Mr. Neill, which I have lately had an opportunity of inspecting.

In the shape of the jaws *Olisthops* resembles several species of *Odax* which inhabit the Australian seas, but does not agree altogether with the account of the dentition of that genus as given in the 'Histoire des Poissons' (xiv. p. 299), nor with the drawing of the jaws of *Odax pullus* (*op. cit.* pl. 408. f. 2).

The jaws of *Odax*, says M. Valenciennes, are composed, as in *Scarus*, of an assemblage of small teeth arranged in a quincuncial order and intimately soldered together, forming on each side a single body, whose cutting edge is crenulated; but these jaws are neither so broad nor so convex as in *Scarus*, and are entirely covered by the lips. They differ from those of *Scarus* in that the teeth form two spoon-bowls at the end of the mouth in front of the spinous points which crown the teeth of the jaw. *Olisthops* and several *Odaces* want these posterior marginal toothlets, the spoon-shaped masses constituting the entire dental process of the jaw, and showing their origin merely by the reflections of the incorporated, minute pearly quincuncial teeth, so densely crowded as to form nearly the whole of their smooth exterior surfaces.

### OLISTHOPS CYANOMELAS, Richardson.

*Radii.*—Br. 4; D. 18|10; A. 3|10; C. $12\frac{4}{3}$; V. 1|5; P. 12.

(Pl. III. fig. 1, 2.)

Form elongated, the greatest height of the body, which occurs just behind the ventrals, being contained five times and a half in the total length of the fish, caudal included. The bluffness of the head, produced by the form of the jaws, is intermediate between that of *Scarus* and *Odax*, and the profile, from the nostrils to the dorsal, is moderately ascending and but slightly convex. The jaws have the usual structure of those of *Scarus*, being composed of a multitude of minute teeth, arranged in a quincuncial order in many rows, and so incorporated with the bone that they produce no inequality of surface, but reflect the light in certain positions so as to reveal their structure. The two premaxillaries conjointly, and the two halves of the mandible, resemble half the bowl of a spoon with straight cutting edges, which under a lens appear to be striated and minutely crenulated. At the symphysis of the mandible, the cutting edge rises slightly, so as to seem very slightly peaked. The orifice of the mouth is comparatively small, and the small maxillaries are concealed under the skin at its corners. Interiorly there is a conspicuous velum in both jaws. The small nostrils lie in a membranous space above the preorbitar.

The entire head is covered with smooth integument, which has no inflexed folds at the edges of the opercular pieces or preorbitar, but is continuous with single lips, that are capable of covering the jaws. The gill-membrane is continuous with the edges of the interopercula, and passes over the isthmus to which it is partially adherent, leaving a small flap posteriorly. It is sustained by four flat thin rays on each side. In length the head is equal to five diameters and a half of the circular orbit, and the space between the eye and the tip of the gill-flap equals three of these diameters. The eye is near, but does not touch the upper profile of the head. A triangular preorbitar, having a length equal to the diameter of the orbit, is so concealed by the integument that it is scarcely discernible in the recent fish, but in the dried specimen it shows a slightly raised disk bounded in a somewhat radiated manner by slightly prominent mucous canals. The rest of the suborbitar chain goes round more than half the orbit in form of a slender line of simple mucous tubes. The two limbs of the preoperculum, equal to each other in length, meet at a right angle and inclose a broad and perfectly smooth cheek. In the dried fish the disk of the bone appears raised, and is edged irregularly with mucous prominences, but the under border of the bone is thin, and is scarcely distinguishable from the very thin, flexible interoperculum. At the temporal angle of the gill-plate there originates a bushy cluster of prominent ramifications, which disappear about the middle of the disk, and are most probably not visible at all in the recent fish. The rather narrow, very thin suboperculum is lengthened into the tip of the gill-cover, in which the flexible bone is scarcely to be distinguished from the membrane. The gill-opening is restricted above, the whole upper edge of the operculum being attached to the side of the head by membrane. Posteriorly and above the pectoral the gill-membrane is vertically truncated, and the gill-opening slopes from the level of the upper ray of that fin downwards and forwards till it terminates opposite to the angle of the preoperculum. A row of small scales exists on the suprascapular region, but there are no other scales, nor any bony or spinous points on the head.

The scales are cycloid and of smaller size than those of *Scarus*, there being forty-eight in a longitudinal row between the gill-opening

nape. The hands and feet are short; the fore-thumb is small, the hinder one rather large and broad.

*Hab.* West Africa?

This species is very like ***Presbytis obscurus***, but it is blacker, and has no pale spot on the nape, and the hair of the body is much longer, more silky, and forms a compressed crest on the nape, which is quite wanting in *P. obscurus*.

It is more like *P. melalophus*, but differs from it in being black, and can scarcely be a black variety of that species.

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Sir Roderick Murchison exhibited the head of a fish belonging to the genus *Clarias*, from the river Limpopo, and a portion of the skull of *Phacochœrus æthiopicus*, which had been collected by Capt. Vardon, during his recent travels in South Africa. The *Clarias* had been seen by Mr. Oswell, and identified by him as being a species also found in the river Zonga, which flows out of the newly discovered Lake. In directing the attention of the meeting to what may be regarded as the first indication which has reached us of the zoology of that most interesting region, Sir Roderick Murchison gave a summary of the knowledge already obtained by African explorers of the character of the country surrounding the Lake, and of the speculations in physical geography to which their discoveries have given rise.

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Mr. R. C. Griffith exhibited some specimens of the "Tstetze," which had been entrusted to him for that purpose by Capt. Vardon. Sir Roderick Murchison having given some account of the supposed effects of the sting of this fly, Mr. Westwood undertook to describe the insect more particularly, as it appeared to be new to science, at a future meeting of the Society.

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The Secretary exhibited some cocoons of a species of *Saturnia*, "the famous wild silk-worm from Leotang in Mantchouria," which had been transmitted to this country by Mr. Rutherford Alcock, Her Majesty's Vice-Consul at Shanghae, and obligingly presented to the Society by Dr. Lindley.

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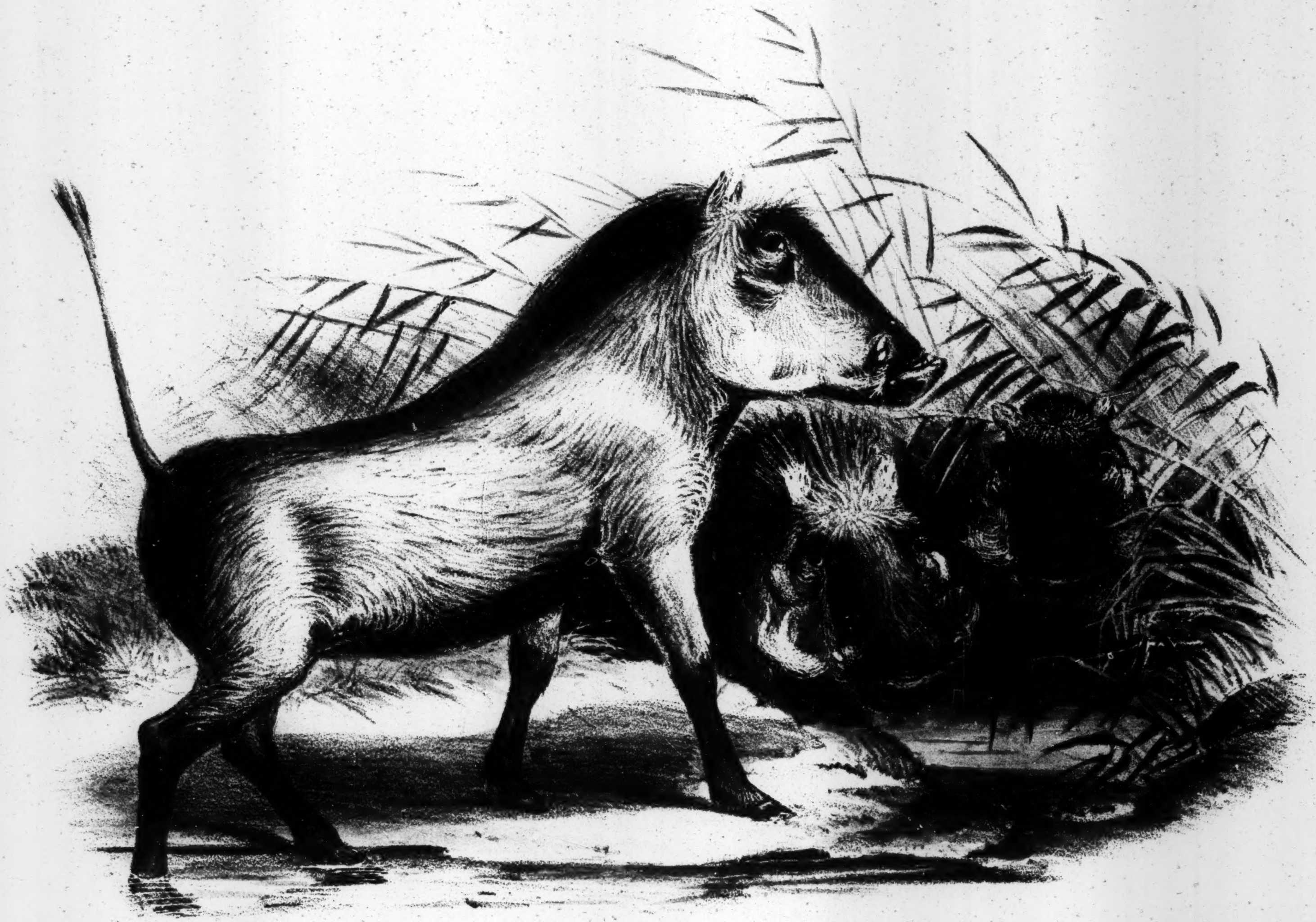
## April 23, 1850.

R. H. Solly, Esq., F.R.S., in the Chair.

The Secretary reported that he had received a letter from Lord Harris, Governor of Trinidad, announcing his Excellency's intention of presenting some living animals from that island, and from Venezuela, to the Society.

The Secretary also stated that he had succeeded in purchasing for the Menagerie two healthy young specimens of *Phacochœrus æthiopicus*, the Vlack Vark, from Port Natal. They are stated by the importer to be about fifteen months old. (Mammalia, Pl. XVII.)

Proc. Z. S. Mammalia XVII.



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PHACOCHŒRUS ÆTHIOPICUS. JUV.

The following papers were read :—

## 1. On the Garruline Birds, or Jays; with Descriptions of new species. By Charles Lucien, Prince Bonaparte.

(Aves, Pl. XVII.)

Having elevated the *Garruline Crows* to the rank of a full family, the forty-eighth of my Natural Classification of Birds, I now consider the family *Garrulidæ*, (including, besides the *Glaucopinæ, Baritinæ*, and the *Jays*, also the *Hopping Magpies*, notwithstanding their stronger bill and closer relation to the *Corvidæ*,) as formed of four different groups (subfamilies or great genera as you may call them, according to your notions, and you admit or not subgenera). And I say four, although I do not separate the Magpies from the Jays, but consider them as *Garruline*, because to the three old subfamilies, *Baritinæ, Glaucopinæ* and *Garrulinæ*, I now add a fourth, for the reception of a good many birds hitherto scattered in different families, whose affinity to the Jays, taken for mere analogy, is now clear and manifest to my eye. *Garrulax, Actinodura, Oriolia, Turnagra*, or rather *Otagon*, distinct from the much more Garruline *Keropia*, with those *Kittæ* which are not *Coraciinæ*, are all members of this my new group, to which (however enlarged) I give or rather *preserve* the name *Ptilorhynchinæ*, as it includes also *Chlamydera* and *Ptilorhynchus*, which in *Sturnidæ* were out of their place. But the object of the present paper is merely the enumeration of the genera and species of my Garruline subfamily.

The first that we meet, ending the *Ptilorhynchinæ* with *Keropia*, which may as well be the first of Garrulinæ, is the genus *Platylophus*, Sw., judiciously changed by G. R. Gray, 1840, into *Lophocitta*, hitherto composed of but one species from Java, to which I now add a second from Sumatra, introducing to you the bird called *Garrulus histrionicus* by Solomon Müller, struck in the native woods where he discovered it by its mimic gestures, whilst the skins he sent to the Leyden Museum suggested the name of *Garrulus rufulus*, Temminck, than which there can be no better for closet-naturalists. I introduce it thus in the Systema Naturæ.

**Lophocitta histrionica**, Bp. *Minor: fusco-ferruginea; collari nigro; maculâ utrinque colli magnâ, supraoculari parvâ, albâ.*

*Synonyms.*

Garrulus histrionicus, *Müll.*
Garrula rufula, *Temm.* Fig. nulla.
*Hab.* Sumatra; Borneo.

The old species will stand as follows:

**Lophocitta galericulata**, Gr. *Major: nigra; collari nullo; maculâ utrinque colli magnâ, supraoculari parvâ, albâ.*

*Synonyms.*

Corvus galericulatus, *Cuv.*
Lanius scapulatus, *Licht.*

Lanius coronatus, *Raffles*; *Levaill. Hist. Nat. Parad.* t. 42.

*Hab.* Java.

The second genus of the family will be my *Perisoreus* or the *Dysornithia* of Swainson, a northern group composed also of two species only, both well known, the European and Asiatic *Perisoreus infaustus* and the American *Per. canadensis*; for *brachyrhynchus*, Sw., is the young of the latter; and as to *Garrulus ferrugineus*, Bechstein, we cannot think of admitting it as distinct, although sustained by Wagler; plate 48 of Levaillant, on which alone it is based, being much more like *Perisoreus infaustus* than the very plate 47 constantly quoted under that name.

Third comes the true *Garrulus*, peculiar to the Old World, composed of our common Jay with its five closely-allied (or mere races), and two other more distinct, though hardly less typical, species; one of which, the chief object of the present paper, is certainly by far the handsomest, if not at the same time the largest, resembling most, especially by the small, lanceolate, white-shafted feathers of its throat, with barbs still more disjuncted, *Garrulus lanceolatus* of Central Asia, so well figured by Gould in his 'Century of Himalayan Birds'; which may be appreciated also in its adult state under the name of *Garrulus gularis*, and in immature plumage under that of *Garrulus Vigorsi* among the 'Illustrations of Indian Zoology.' Our new species, notwithstanding its stouter and longer feet, its higher and much more compressed bill, and elongated square tail, can by no means be called aberrant.

(Aves, Pl. XVII.)

**GARRULUS LIDTHI**, Bp. *Rufo-vinaceus; capite colloque ex totis, alis, caudâque, saturatè azureis; fronte lorisque nigricantibus; plumis gulæ lanceolatis, barbulis disjunctis, rachidibus albis: tectricibus alarum nigro-fasciolatis: remigibus, rectricibusque apicem versus nigricantibus, apice ipso albo.*

Long. 13 poll.; rostr. $1\frac{1}{2}$ poll.; alæ 7 poll.; caudæ $5\frac{1}{2}$; tars. 1″ 8‴.

Typicus; quamvis ad ACTINODURAM accedens simul et ad CYANOPICAS!

Rostrum albidum, altum, valde compressum: cauda elongata, æqualis.

Color azureus capitis et colli sensim in rufo-vinaceum dorsi et abdominis transiens.

*Hab.* The precise country of this Jay is not known; but Asiatic as *it shows*, and all circumstances induce us to believe, it must live in some very remote and unexplored occidental spot of China or Indo-China. The specimen described formed part of Baron van der Capellen's collection, purchased after the death of that Dutch governor of Malasia by Prof. van Lidth de Jeude of Utrecht. I detected it last week during a visit I paid to that most splendid perhaps of private collections with my learned friend Schlegel *.

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* We had a double object in view in visiting Utrecht and the munificent Professor, to whom it is more justice than compliment to dedicate his new Jay: 1. Of admiring the only adult bird in collections of the Japanese Sea-Eagle (*Haliaë-*

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The tail alone, strongly rounded, would be sufficient to distinguish from our new species, and indeed from all others,

**Garrulus lanceolatus**, Vig. *Cano-vinaceus: pileo genisque nigris: gula juguloque nigricantibus plumis lanceolatis, rachidibus albis: tectricum alarum minorum exterioribus candidis, corpori proximioribus nigerrimis* absque fasciis: *remigibus rectricibusque cæruleis nigro fasciolatis: cauda valde rotundata, apice alba.*

*Synonyms.*

Garrulus gularis, *J. Gr. adult.*
Garrulus Vigorsi, *J. Gr. juv.*
*Ill. Ind. Zool.* i. t. 10 & t. 9.
*Hab.* in Asia centrali, Himalaja.

N.B. The small coverts which in all other Jays are blue banded, in this are plain black and white (bipartite); which latter colour on the contrary is wanting on the quills, beautifully striated blue and black as are the small coverts of the others.

The comparison with this last species was the only one necessary to establish; but, considering that no little difficulty is met with in discriminating the different European and Asiatic Jays, and what a confusion prevails among the synonyms of the remaining, which may be considered as six races of the same great species, I shall try to take advantage of my long experience, peculiar fancy for the group, and especially of the rich collection I now have at my command, in order to point out their discrepancies.

1. **Garrulus glandarius**, Vieill. *Cinereo-vinaceus, dorso orbitisque concoloribus: pileo albo-cinereo, plumis elongatis medio nigris: genis rufescentibus: gula juguloque albis: remigibus primariis extus basi albis; secundariis obsolete cæruleo-fasciolatis: rectricibus nigris subfasciolatis. Major: rostrum validum.*

*Synonym.*

Corvus glandarius, *L. &c.*
*Pl. Enl.* 481; *Levaill. Parad.* t. 40, 41; *Gould, Eur.* t. 214.
*Hab.* Europ. s. occ. et m. ab Hispaniâ ad Græciam.

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*tus pelagicus, leucopterus* aut *imperator*), whose monstrously powerful bill must really be *thunderstriking*! 2. Of ascertaining the supposed new species of *Microglossus*, of which you may have read in the 'Comptes Rendus' of the French Academy, and which I am delighted to say proves to be a specimen of the oldest known, more likely to get the second abolished than a third established. Schlegel (whose observations I shall always be happy to collect and profit by) declared that the two species of *Microglossi* will henceforth stand in precisely the same relation as the two *Coracopsis* (which he of course called *Vasa*) to each other. But even not considering that result of our investigation, our chief object would have become the least important, from the great variety of valuable and new animals we saw on all sides in the newly-built galleries and well-kept museum, especially among reptiles! And what can I say of the unique collection of fœtuses? Even Englishmen could not help being amazed at seeing in the midst of other wonders, the Elephant and Hippopotamus bottled up in spirits!

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2. **Garrulus japonicus**, Schlegel. *Fusco-vinaceus, dorso concolore: pileo albo-cinereo, plumis elongatis maculis nigris expansis: orbitis, loris, remigibusque primariis basi externe nigris: secundariis cæruleo nigroque distincte fasciatis: rectricibus subunicoloribus.*

*Synonym.*

Garrulus glandarius, var. an nov. sp.? Patriæ ignotæ, *De Filippi, Cat. Mus. Mediolanens.* 1847, sp. 18; *Faun. Japonic. Av.* t. 43.

*Hab.* in Japan.

3. **Garrulus Krynickii**, Kaleniczenko. *Cinereo-vinaceus, dorso orbitisque concoloribus: pileo nigro, plumis elongatis: cervice rufa: gula, genis, juguloque rufo-cinereis: remigibus secundariis unicoloribus: rectricibus mediis tantum fasciatis cærulescentibus ad basim. Major: rostrum robustum.*

*Synonyms.*

Corvus glandarius, var. pileo nigro, *Hohenacker, Enumeratio Anim. Schirwan, in Bullet. Soc. Nat. Mosc.* 1837, p. 141.

Garrulus Krynickii, *Kalenicz. Bull. Soc. Nat. Mosc.* 1839, p. 319. t. 14.

Garrulus iliceti, *Mus. Lugdun.*

Garrulus glandarius melanocephalus, *Schleg. Rev. Critiq. Ois. Eur. et Faun. Japon.*, *et* G. melanocephalus, *Auct. quoad Av. Europ.! nec Bonelli*; *Susemihl, Eur. Vog.* 11. t. 6.

*Hab.* in Europa magis orientali et Asia occid. in Regionibus Caucasicis et transcaucasicis, Persia boreali, Crimea, Ukrania, Daouria.

4. **Garrulus melanocephalus**, Bonelli. *Cano-vinaceus, dorso orbitisque concoloribus; pileo nigro, plumis vix elongatis: cervice rufo-castanea: gula, genisque albis: subtus albido-cinereus: cæruleo alarum dilutiore, minus extenso: remigibus secundariis unicoloribus: rectricibus mediis omnino cæruleo-fasciolatis. Minor: rostrum gracilius.*

*Synonyms.*

Garrulus atricapillus, *Geoffr.* 1832.

Garrulus iliceti, *Mus. Berolin.*

Pica stridens, *Ehrenb.*; *Géné, Mem. Acad. Taur.* xxxvii. t. 1; *Levaill. jun. Exp. Alger. Av.* t. 6.

*Hab.* in Africa s. Syria, Arabia.

5. **Garrulus Brandti**, Eversm. *Vinaceo-rufus, dorso cano; orbitis nigris: abdomine cinnamomeo canescente: pileo rufo-cinnamomeo, plumis elongatis, vix maculato: remigibus secundariis externe candidis: rectricibus ad basin tantum obsolete fasciatis.*

*Synonym.*

Garrulus Brandti, *Hartl. Rev. Zool.* 1845; *Schleg. in Faun. Japon.* p. 83; *Brandt, Enum. Anim. Vert. Sib. Occ.* p. 25. sp. 104.

*Hab.* in Sibiria occid. et centr. Mont. Altai.

6. **Garrulus bispecularis**, Vig. *Cinereo-cinnamomeus, dorso*

*orbitisque concoloribus : pileo immaculato, plumis vix elongatis: remigibus secundariis* (*uti tectrices minores*) *nigro cæruleoque fasciolatis.*

*Synonyms.*

Garrulus ornatus, *J. Gr. Ill. Ind. Zool.* t. 10.
Garrulus bispecularis, *Gould, Cent. Himal. B.* t. 38.
*Hab.* in Asia Centrali, Nepal. Mont. Himalay.

N.B.—I do not know *Garrulus albifrons,* figured by J. Gray on plate 12 of the second volume of Hardwicke, Ind. Zool. Ill., but notwithstanding the authority of Hartlaub, judging *as he does* from the figure, I have no hesitation in declaring it is not a Jay.

The fourth genus of my *Garruline* subfamily is *Cyanogarrulus,* Bp., a North American group, dismembered from *Cyanocorax,* Boie, for the distinction of the Blue *true Jays* with shorter bills, short-tailed and crested, much more allied to the European *Garruli* than to the South American *Cyanocoraces.* Three species are known : *cristatus,* L., *Stelleri,* Pall., and *coronatus,* Sw.

Not professing Mr. Strickland's principles as to the appropriation of names, we borrow from him the classical one *Cyanocitta* for a fifth group, still composed of a dozen species of both Americas, such as *flavidanus, ultramarinus,* &c., of which genus we shall say no more on this occasion, in hopes that such elegant birds tinged with *blue* will shortly make their appearance in a peculiar monograph published in the same style and with the same joint authorship as the monograph of those birds tinged with *red,* the *Loxiinæ,* just ready to appear by the exertions of Dr. Schlegel and myself.

A sixth genus will necessarily be the one to which I restrict Boie's name of *Cyanocorax,* because even by their size and less brilliant colours they are really *Blue Crows,* such as *C. azureus* and *violaceus,* which latter, even by its nuchal ornament (beautiful ornamental spot), shows a passage on one side to *C. ornatus,* (which with the other smaller elegant species, such as *armillatus,* have again a tendency to the Jays ;) and on the other, by *C. cayanus,* to the white-tailed species, much more crow-like, and which five, as they are, might constitute the group *Uroleuca.*

Then comes seventh, with its yellow tail, my new genus *Xanthura,* composed of three South American birds formed and coloured as *Corvus peruvianus,* one of which exhibits also the elegant nuchal spot which so much contributes to show the South American birds connected. The last of *Cyanocorax* must be the *Sanblasiana,* so abnormal as to deserve perhaps the generic appellation of *Cissilopha.* More than ever convinced of the propriety of using old names for modified groups, I persist of course in retaining that of *Cyanurus,* Swainsonian synonym of *Cyanocorax,* but recalling attention to the tail, for the *Long-tailed Blue Jays with black bills* : of these, two undescribed species appear to live in the far east of Asia, quite as beautiful as the two celebrated ones of occidental America, upon which so many names have been lavished :

1. **Cyanurus bullocki**, Bp. *Cyaneus, subtus albus: gula, genis, pectoreque nigris: crista frontali parva: rectricibus duabus mediis mirifice elongatis, lateralibus apice latissime albis.*

*Synonyms.*

Pica Bullocki, *Wagl.* 1827.
Pica miles, *Licht.*
Pica formosa, *Sw.*
Garrula gubernatrix, *Temm. Pl. Col.* 436.
Psilorhinus gubernatrix, *Gr.*
*Hab.* in Mexico.

2. **Cyanurus colliei**, Bp. *Cyaneus, subtus cum genis albus; torque jugulari nigro: crista sincipitali magna: rectricibus mediis modice elongatis; lateralibus apice latissimis albis.*

*Synonyms.*

Garrulus bullocki, *Aud.* nec *Wagl.*
Psilorhinus bullocki, *Gr.*
Pica Colliei, *Vig. Zool. Beechey's Voy.* f. 7.
Garrulus Burneti (err. bernetti, berneti and bennetti), *J. Gr.*
Garrulus ultramarinus, *Aud.* nec *Bp. Am. B.* t. 96.
*Hab.* in California.

3. **Cyanurus dairi**, Bp. *Cyaneus, subtus omnino albus: crista occipitali longa; rectricibus mediis valde elongatis; omnibus apice nigris.*
*Hab.* in Asia magis orientali, Corea.

4. **Cyanurus cubo**, Bp. *Cyaneus, subtus antice niger: crista nulla: rectricibus mediis valde elongatis; omnibus apice albis.*

*Synonym.*

San-zjak, *Japonens.* (which name applies also to the red-billed *Calocitta sinensis*).
*Hab.* in Asia magis orientali, *Corea.*

Naturalists acquainted with the two American species will see, independently of these phrases, how much more strongly the characters contrast between my two new Asiatic species than between the old American ones, although in some aspects they may be considered to bear to each other the same relations. At all events that I should be excused, if not justified, my Chinese *Black-billed Cyanuri* must on every account be followed and supported by Schlegel's own genus *Biophorus* and by its only species *Biophorus paradisiacus* of the Fauna Japonica, Av. Suppl. tab. B. Of this splendid bird also the portrait only has yet reached Europe, taken by a Japanese artist from the living bird under the eye of the celebrated Siebold, who is warrant of its correctness.

The next genus will be that of the *red-billed, long-tailed, Blue Magpies*, to which I give the name of *Calocitta*, not being able to apply to the group any older than that given to it by my friend Gray in 1840, though since withdrawn when he had the untoward idea of making the most unnatural amalgamation of *Garrulinæ* under his arrangement of *Psilorhinus*! Those who call it *Cissa* are evidently wrong. I know three Indian species, nor do I believe in many more, at least among the described. *Psilorhinus morio, fuliginosus* or *mexicanus,* therefore, would have to stand alone, as Rüppel probably intended it when he instituted the genus (excellent if not adulterated), if we had not from Chili a smaller new species as typical as the old one (*Psilorhinus chilensis,* Bp.).

Still less than the other intruders can *Gymnorhinus cyanocephalus,* Wied, be forced into it, as the name alone ought to have taught. That name, however, was preoccupied, when, in 1840, the Prince of Neuwied proposed it for his new genus: and it was very reluctantly, and after requesting in vain the author to change it himself, that I was compelled in 1842 to make it *Cyanocephalus,* calling the bird *Cyanocephalus Wiedi,* as a small compensation and a testimony of personal regard to the author, with whom I have long corresponded and prosecuted all kinds of satisfactory scientific affairs. Now, in 1850, he requests me to take his new name of *Gymnokitta,* and I most willingly adopt it, hoping that all ornithologists will make an exception to the rule of priority in this very peculiar case, in which, after all, the Prince of Wied claims his own genus with a better name.

Intermediate between *Garrulus* and *Pica,* we come now to my *Cyanopica,* a genus of *Blue Magpies* about which some English journalists have *chattered* like *pied* (or rather *paid*) Magpies! I subjoin here the phrases of its three species, that of Vaillant, Pallas, and Capt. Cook, now Widdrington (so closely allied as to be taken for three races of but one species), to show they are really distinct, although the characters hitherto assigned to them by the most clever and accurate naturalists may have proved inconstant and fallacious.

1. CYANOPICA MELANOCEPHALA, Bp. *Capite subcristato, ex toto cum gulâ nigro: dorso cærulescenti: rectricibus omnibus albo terminatis.*

*Synonyms.*

Corvus cyaneus, *Lath., Vieill.*
Pica melanocephalos, *Wagl.*
Cyanopica Vaillanti, *Bp. in litt.*; *Levaillant, Ois. Afr.* t. 58.
*Hab.* in China.

2. CYANOPICA CYANEA, Bp. *Capite lævi, supra tantum nigro-chalybæo: dorso cinereo-vinaceo, nucha vix canescente: rectricibus lateralibus apice tantum albis, mediis valde elongatis late albo terminatis.*

*Synonyms.*

Corvus cyaneus, *Pall.*
Pica cyanea, *Wagl., Schleg.*
Cyanopica Pallasi, *Bp. in litt.*; *Faun. Japon.* t. 42.
*Hab.* in Asia orientali, Daouria, Japan.

3. **Cyanopica cooki**, Bp. *Capite lævi, supra tantum nigro-chalybæo: dorso cano-rubello, nucha albicante: rectricibus lateralibus late albo terminatis, mediis modice elongatis vix apice albis.*

*Synonyms.*

Pica cyanea, *Cook*.

Pie bleue d'Europe, *Schlegel* (Cyanopica europæa).

Cyanopolius Cooki, *Bp. Brit. Assoc. Birmingh.* 1849; *Gould, Eur.* t. 217; *Susemihl, Eur. Vog.* t. .

*Hab.* in Eur. mer. Hispania.

We are thus arrived to the genus *Pica*, Br., or true Magpie (*the pied long-tailed*), which, as we observed from the beginning, must close the *Garruline* series, which it connects with the *Corvidæ*, showing as much affinity to those larger Crows as the first of the Jays do to the smaller Shrikes or *Laniidæ*. Of such Magpies we know eight species perfectly typical and quite close to each other, whilst two birds still allowed to remain in it are abnormal, each deserving of a genus by itself: to both these birds, however different in form and colour, the name of *Corvus caledonicus* has been applied, one of which is the slender-billed, more jay-like *Pica albicollis*, Vieill., *Garrula torquata* of the 'Pl. Col.' of Temminck, to which the generic name of *Streptocitta* might be applied; whilst I propose that the name of *Gazòla* (so congenial in this our family), applied to the legitimate *Corvus caledonicus*, should honour the person and perpetuate the martyrdom of a highly refined and scientific ecclesiastical friend of humanity, the lost victim of clerical machinations!

## 2. MONOGRAPH OF SPHÆNIA, A GENUS OF LAMELLIBRANCHIATE MOLLUSCA. BY ARTHUR ADAMS, R.N., F.L.S. ETC.

(Mollusca, Pl. X.)

In the unrivalled Collection of Mr. Cuming is a group of Bivalve shells, which appear to be neither *Mya* nor *Corbula*, but partaking of the characters of each. The animal, which is also preserved in spirits, resembles that of *Corbula* in having short united siphons, a small compressed foot, and in the mantle being closed, with the exception of an anterior elliptic opening; the shells, however, have the hinge of *Mya*, but do not gape at both extremities. The only genus, therefore, into which they resolve themselves is *Sphænia* of Turton, which, with the hinge of *Mya*, gapes only at one end, and which moreover is deprived of a long coriaceous siphon. Mr. Hanley has published one species in the 'Zoological Proceedings,' under the name of *Mya semistriata*, and M. Deshayes another, under that of *Corbula decussata*, in the 'Magazin de Zoologie,' 1844, and I had described a third, under the name of *Sphænia Mindorensis*, in the 'Zoology of the Voyage of H.M.S. Samarang;' and to these I now add several other large exotic species collected by Mr. Cuming.

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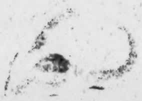

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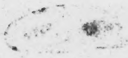

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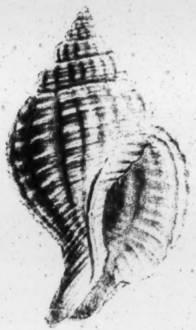

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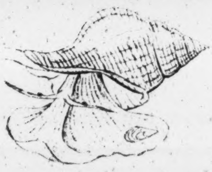

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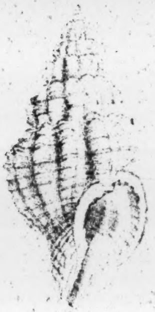

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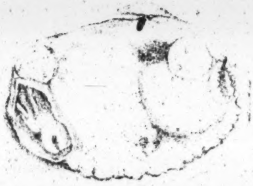

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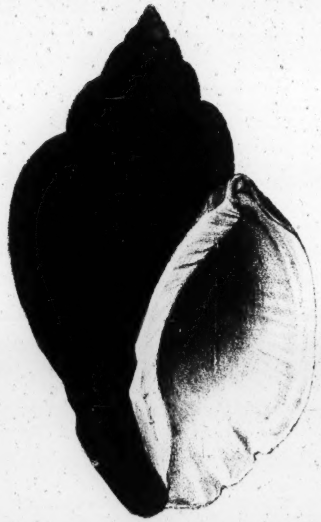

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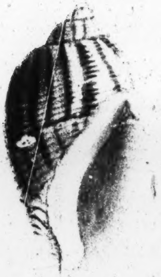

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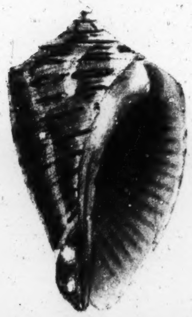

A Adams W Wing del. W Wing lith

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## SPHÆNIA, Turton.

*Animal ovatum; pallium anticè clausum, præter aperturam pro pede parvo digitiformi sulco byssali instructo; siphones connati usque ad extremitates, orificia cirrata; sipho analis valvulâ tubulari membranaceâ extra orificium productâ.*

*Testa oblonga, inæquivalva, inæquilateralis, magis minusve posticè hians; lævis, vel rugosa, epidermide tecta; umbones incurvati; cardo dente laminari dilatato erecto in valvulâ sinistrâ, alveo convenienti in valvulâ dextrâ; ligamentum internum; impressiones pallii sinu parvo.*

Animal ovate; mantle closed in front, except an opening for the passage of a small digitiform foot furnished with a byssal groove; siphons united to their extremities, their orifices cirrated; anal siphon with a tubular membranous valve projecting beyond the orifice.

Shell oblong, inequivalve, inequilateral, more or less gaping posteriorly; surface of the valves smooth or rugose, covered with an epidermis; beaks incurved; hinge composed of an erect, dilated, laminar tooth in one valve, with a corresponding pit in the other; ligament internal; pallial impression with a slight sinuation.

**SPHÆNIA BINGHAMI,** Turton. *S. testâ inæquivalvâ, inæquilaterali, ovato-trigonali, transversim concentricè sulcatâ, epidermide olivaceo tectâ; latere antico breviore, rotundato, postico longiore, hiante, subtruncato; impressione pallii sinu subprofundo, rotundato; dente cardinis valvulæ sinistræ posticè subsinuato.*

*Hab.* in littoribus Britannicis.

Shell inequivalve, inequilateral, ovately trigonal, transversely concentrically sulcated, covered with an olivaceous epidermis; anterior side shortest, rounded, posterior side longest, gaping, subtruncate; sinus of pallial impression rather deep and rounded; tooth of left valve posteriorly sinuated.

*Hab.* British islands.

**SPHÆNIA DECUSSATA,** Deshayes, sp. *S. testâ ovato-oblongâ, subæquilaterali, posticè truncatâ, subrostratâ, rostro basique obliquè carinatâ, albâ, striis longitudinalibus, transversisque tenuissimè decussatâ; umbonibus magnis, oppositis; dente cardinali magno, obliquo, compresso in valvâ sinistrâ, in valvâ dextrâ foveolâ profundâ, marginatâ.*

*Hab.* in Sumatræ maribus.

Shell ovately-oblong, subequilateral, posteriorly truncated, subrostrate, beak and base obliquely carinated, white, very finely decussated with longitudinal and transverse striæ; umbones large, opposite; cardinal tooth large, oblique, compressed in the left valve, in the right valve a deep marginated pit.

*Hab.* Seas of Sumatra.

**SPHÆNIA SEMISTRIATA,** Hanley, sp. *S. testâ albâ, transversâ, ovali, inequilaterali, concentricè striatâ; latere antico breviore,*

*valdè convexo, lævi; postico longiore, angustiore, truncato, radiatim striato; margine ventrali in medio sinuoso, posticè angulato, anticè rotundato.*

*Hab.* ——?

Shell white, transverse, oval, inequilateral, concentrically striated; anterior side shortest, very convex, smooth; posterior side the longest, narrower, truncated and radiately striated; ventral margin sinuated in the middle, angulated posteriorly, rounded anteriorly.

*Hab.* ——?

This species have sculpture similar to *Sp. princeps*, but the valves are more gibbous, especially at the anterior part; the shell is much thinner, and the general outline different.

Mya semistriata, *Hanley, Zool. Proc.* 1843.

SPHÆNIA PRINCEPS, Adams. *S. testâ magnâ, albâ, transversâ, ovali, inequilaterali, concentricè striatâ; latere antico, longiore, rotundato, lævi; postico breviore, angustato, subtruncato, radiatim sulcatâ; margine ventrali arcuato, integro; impressione palliali vix sinuatâ; dente cardinis emarginato.*

*Hab.* in insulis Philippinis.

Shell large, white, transverse, oval, inequilateral, concentrically transversely striated; anterior side longest, rounded and smooth; posterior side shortest, narrow, subtruncated and radiately sulcated; ventral margin arcuated and entire; pallial impression with a slight sinus; hinge with the edge of the cardinal tooth of the left valve emarginate.

*Hab.* Philippine Islands; *H. C.* (Mus. Cuming.)

SPHÆNIA ELLIPTICA, Adams. *S. testâ transversâ, ovali, subæquilaterali, albâ, fragili, utrinque rotundatâ, epidermide tenui partim obtectâ, concentricè striatâ; latere antico lævi, postico radiatim striato; impressione pallii vix sinuatâ; dente cardinis sæpe valdè anticè fisso.*

*Hab.* in Australasiâ.

Shell transverse, oval, subequilateral, white, fragile, rounded at both ends, partially covered with a slight epidermis, concentrically striated; anterior side smooth, posterior side radiately sulcated; sinus of pallial impression very shallow; hinge with the tooth of the left valve often deeply fissured anteriorly so as to exhibit an apparent distinct anterior tooth.

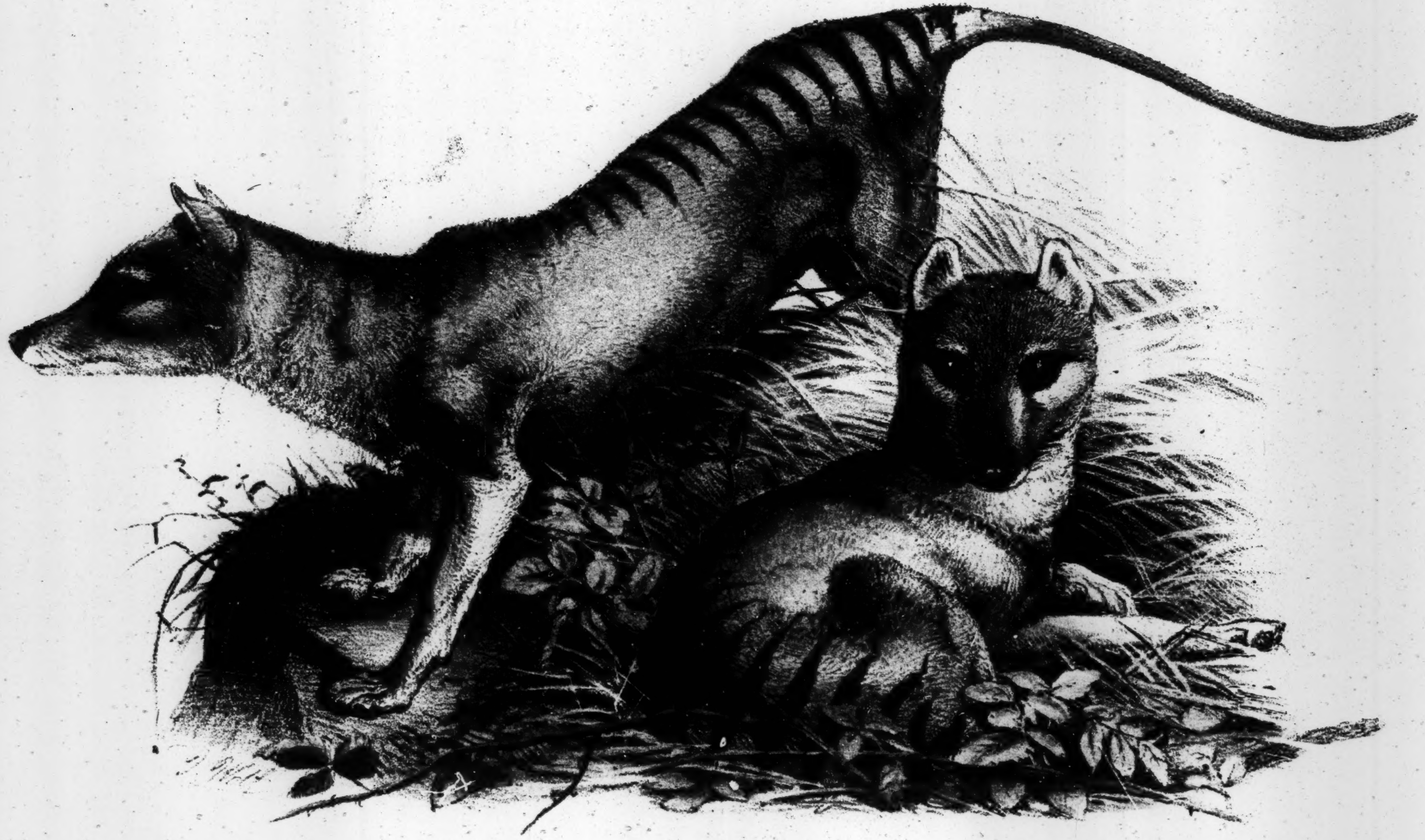
*Hab.* Sydney, 4 fathoms, mud; *Mr. F. Strange.* (Mus. Cuming.) Mus. Hanley.

SPHÆNIA DECURTATA, Adams. *S. testâ transversâ, ovali, subæquilaterali, albâ, concentricè transversim sulcatâ; longitudinaliter tenuissimè radiatim striatâ; anticè latiore, rotundatâ, posticè angustatâ, angulatâ, abruptè truncatâ; margine ventrali arcuato, integro; impressione pallii sinu parvo; dente cardinis anticè valdè fisso.*

*Hab.* in insulis Philippinis.

Shell transverse, oval, subequilateral, white, transversely concentri-

Proc. Z. S. Mammalia. XVIII.



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THYLACINUS CYNOCEPHALUS JUV.

cally sulcated; longitudinally very finely radiately striated; anteriorly rounded and wider, posteriorly narrower, angulated and abruptly truncated; ventral margin arched, entire; pallial impression with a small sinus; hinge with the tooth of the left valve deeply fissured anteriorly.

*Hab.* Catanuan, province of Tayabas, island of Luzon, in sand at low water; *H. C.* (Mus. Cuming.)

SPHÆNIA PHILIPPINARUM, Adams. *S. testâ ovali, transversâ, subinæquivalvâ, albâ, tenui, ventricosâ, inæquilaterali; latere antico longiore, rotundato, lævi; postico breviore, radiatim striato, vix truncato; epidermide fusco tenui tectâ; margine ventrali interdum subsinuato; impressione palliali sinu parvo; dente cardinis valvulæ sinistræ trilobato.*

*Hab.* in insulis Philippinis.

Shell oval, transverse, slightly inequivalve, thin, white, ventricose, inequilateral; anterior side longest, rounded, smooth; posterior side shortest, radiately striated, slightly truncated and covered with a very thin brown epidermis; ventral margin sometimes slightly sinuated; pallial impression with a small sinus; hinge with the cardinal tooth of the left valve trilobate. (Mollusca, Pl. X. fig. 7—9.)

*Hab.* Sibunga, island of Zebu, fine sand, 30 fathoms; *H. C.* Bay of Manila, clayey sand, 6 fathoms; *H. C.* (Mus. Cuming.)

SPHÆNIA RÜPPELLII, Adams. *S. testâ transverso-elongatâ, transversè striatâ, epidermide fusco tectâ; latere antico breviore, rotundato, gibboso, obsoletè radiatim striato; postico longiore, angustiore, subrostrato, truncato; dente cardinis valvulæ sinistræ subsinuato.*

*Hab.* in Mari Rubro.

Shell transversely elongated, covered with a reddish-brown epidermis, transversely striated; anterior side the shortest, rounded, gibbose, obsoletely radiately striated; posterior side narrower, rather beaked, widely gaping and truncate; tooth of left valve slightly sinuated.

*Hab.* Red Sea; *Dr. Rüppell.*

SPHÆNIA MINDORENSIS, Adams and Reeve.
*Voy. Zool. Samarang,* t. . f. .

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## May 14, 1850.

William Yarrell, Esq., V.P., in the Chair.

The Secretary stated that, through the liberality of Ronald Gunn, Esq., and Dr. Grant, of Launceston, the Menagerie had been enriched by the safe arrival of two living specimens of *Thylacinus cynocephalus* (Mammalia, Pl. XVIII.): and he read the following letter in reference to this most valuable and interesting gift, which has added one of the rarest and most difficult forms to the series of Marsupials which have hitherto been exhibited in the Gardens:—

"Launceston, Van Diemen's Land, 29th December, 1849.

"Sir,—I have shipped on board the barque *Stirlingshire*, Chris$^{r}$. Gwatkin, master, two living Thylacines (male and female) for the Zoological Society of London, and which I trust will reach you alive and well. Captain Gwatkin, whom I have known for some years, has promised his utmost personal care and attention to them during the passage home. I have put on board twelve fat sheep (together with hay for their sustenance) as sea-stores for the Thylacines, and have made every arrangement I could think of to ensure their safe arrival in London.

"I have had the female in confinement for upwards of six months, and it has become sufficiently tame to permit its head to be scratched, or to be otherwise touched through the bars of its prison, without showing any anger or irritation. The male, for which the Society is indebted to my friend Dr. James Grant of Launceston, was only caught a month ago. We placed it at once with the female, with which it seems upon the best of terms, but it is not yet so familiar with the presence of man. I have purposely kept their cage close to the side of a path where many of my servants pass daily, and where my children are in the habit of playing, and I find that beyond a hissing noise made by the *male*, they do not seem at all disturbed by any one going close to them.

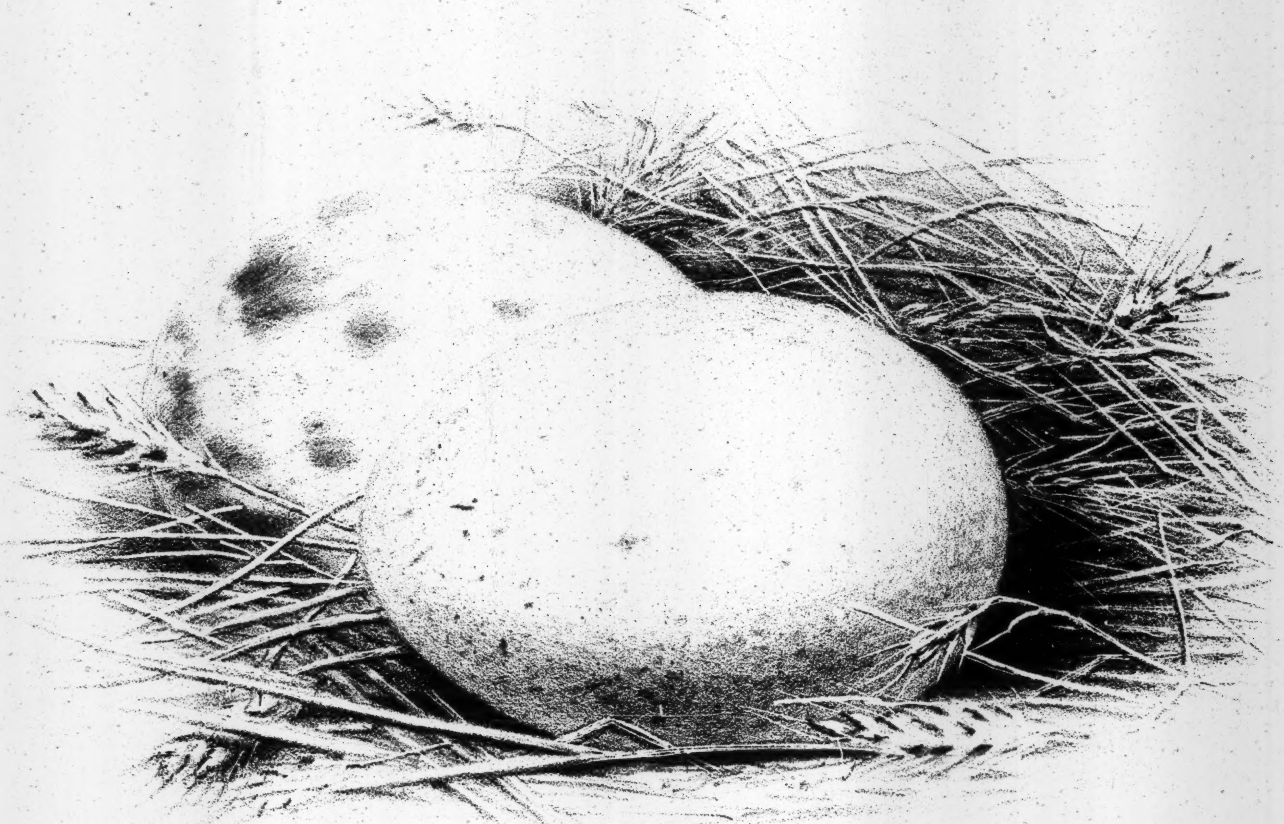
"I have fed them exclusively upon mutton. They prefer the parts containing bones, and do not seem to relish the liver, heart, lights, &c.

"Both these animals have been caught in snares upon the upper part of the St. Patrick's River, about thirty miles N.E. of Launceston.

"The female, which was first caught, was placed for some time in a small unfinished house at the St. Patrick's until I could devise means of getting her down here; and when I sent a trustworthy person up for her, he assured me that she was excessively agile—springing from the floor to the top of the walls, 6 to 8 feet, and from joist to joist near the roof with the activity of a cat. He also informed me that the Thylacine will not eat the *Wombat*, an animal exceedingly abundant on the St. Patrick's River, and with which they attempted to feed it during the month it was there, previous to my having it brought down to my residence. Otherwise I have not had any great opportunity of observing any peculiar habits.

"Both Dr. Grant and I continue to offer high rewards for living specimens, and you shall have all the benefit of our success, whatever it may be. The great increase of sheep in all directions obliges the shepherds to destroy them by every possible means, and they are rarely caught alive, or if so caught, are killed whilst in the snares. I am therefore more than usually anxious that these should reach you safely, and I have offered the Captain a proportionate reward for their delivery alive.

Proc. U. S. Aves XIX



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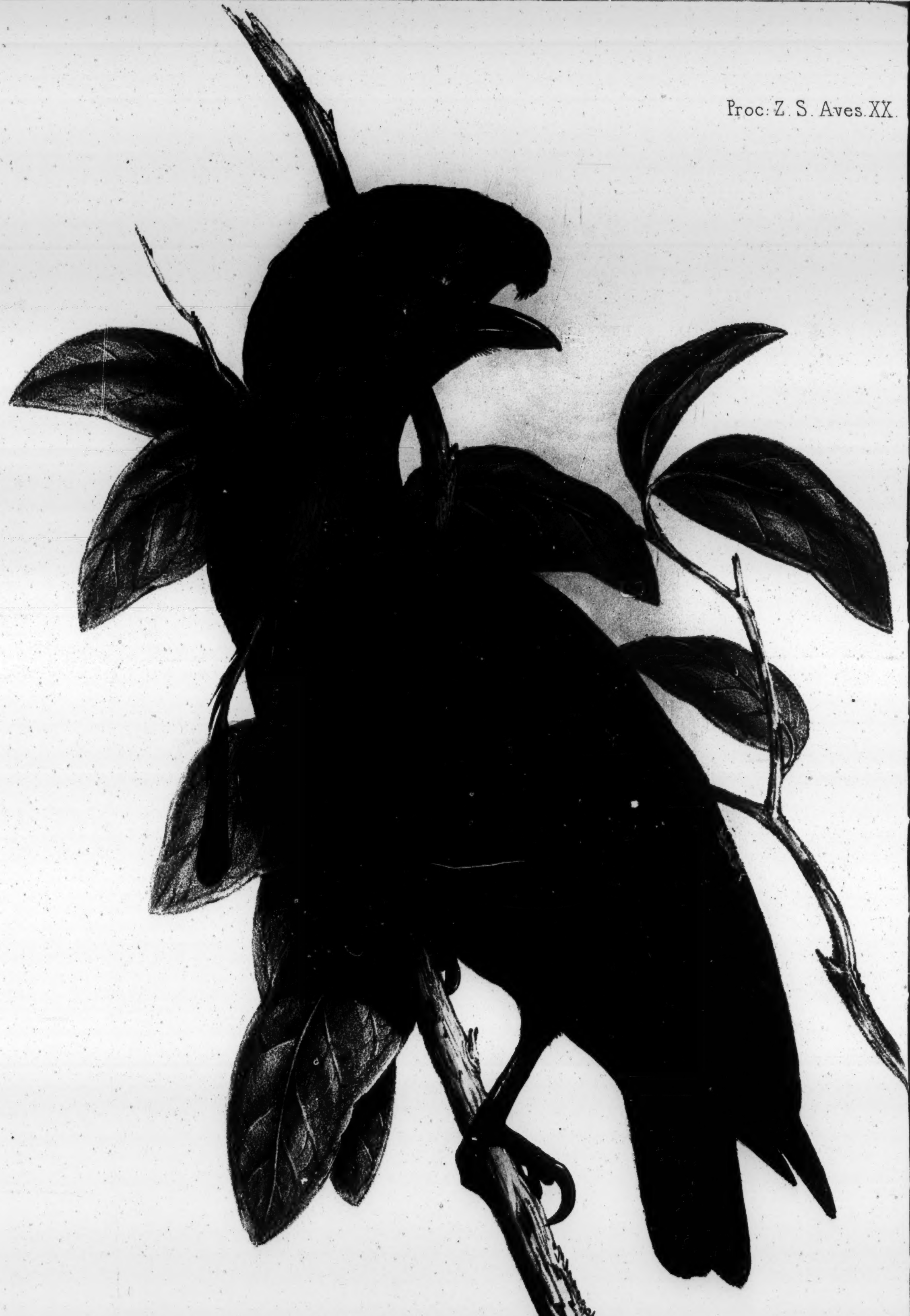
AQUILA AUDAX Lath.



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CEPHALOPTERUS GLABRICOLLIS Gould.

"An observation of mine, contained in a letter to Sir W. Hooker, and which was not meant for publication, has been misunderstood, and has led to the propagation of error—for which I am very sorry. In it I said the Thylacine's tail was *not compressed*—in reference to an observation of Mr. Swainson's in the 'Encyclopædia of Geography' (then recently published), that the tail of the Thylacine was compressed, *which suggested the supposition that it was used in swimming*, &c. It was to the latter part of this observation that my remarks were particularly applied (vide Annals of Nat. Hist. vol. i. p. 101–2), and I meant that the tail was not compressed to such an extent as to have justified the inference that it was useful in swimming; and thus that the animal obtained its food principally from the sea, which the paragraph in the 'Encyclopædia of Geography' implied. The tail is obviously slightly compressed, but not, I think, more so than the tails of the Dasyures, to which aquatic habits are not attributed. In writing hurriedly—and not for publication—I did not express myself with the precision I ought to have done. I mainly wished to point out that the tail would not justify the inference of Mr. Swainson (which I thought very far strained), that the animal was aquatic in its habits and piscivorous. Pray set me right whenever you have an opportunity.

"I beg to remain, Sir, yours very faithfully,

"Ronald C. Gunn."

"*D. W. Mitchell, Esq., Secretary Zoological Society.*"

The Secretary then called the attention of the meeting to three eggs of the Wedge-tailed Eagle of Australia, *Aquila audax*, Lath., which had been recently laid in the Menagerie (Aves, Pl. XIX.), and which were probably the only perfect specimens yet known. The same female had produced two eggs in the spring of 1849, but they were immediately destroyed either by herself or the male, as fragments only were discovered by the keeper.

The following papers were read:—

### 1. Descriptions of new Birds. By J. Gould, F.R.S. &c. &c.

(Aves, Pl. XX.)

It is no less interesting than true, that during the past two years we have had accessions in ornithology of no ordinary value; comprising as they do additional species of several anomalous forms, of each of which only one was previously known; for instance, we have a second species of the genera *Apteryx*, *Menura*, and *Ptiloris*. On the present occasion I have the good fortune to offer to the notice of this Meeting new species of two forms, equal in interest to those above referred to, viz. that of *Cephalopterus*, a form known to all as being American, and of which the type is the remarkable species *Cephalopterus ornatus*, commonly called the Umbrella Bird. The discovery of a second species of this form is due to the researches of M. Warzewickz, a gentleman who has just returned from Central America, after traversing parts of that country hitherto untrodden by Europeans: it was in the high Cordilliera of Chiriqué in Veragua, at an elevation of 8000 feet, that this bird was found, and of which the individual now exhibited was the only one procured.

**CEPHALOPTERUS GLABRICOLLIS.** (Aves, Pl. XX.)

This new species differs in many particulars from its congener, particularly in its smaller size, in the lesser development of its umbrella-like hood, and in its denuded fore-neck and chest, and in the absence of feathers on the base of the tab or appendage at the basal part of the neck. M. Warzewickz describes the bare part of the neck to be reddish orange, and the bare base of the tab as bright red. This fine bird forms part of the collection of T. B. Wilson, Esq., of Philadelphia.

Independently of the novelty just described, M. Warzewickz brought me six species of Humming Birds entirely new to science; these, with some other new species of the same group, I propose to characterize at a future meeting.

By Lord Gifford, who has recently returned from a journey in Thibet, ornithology has been enriched by the discovery of a new species of *Syrrhaptes,* a form as extraordinary in its way as that of any of those above noticed; the new species is finer both in size and colouring than the *Syrrhaptes paradoxus*; it was shot on the banks of the Stumerrerri Lake, where two examples were seen, but unfortunately only one was procured; it appears to be an adult male, for which I propose the name of

**SYRRHAPTES TIBETANUS.**

Face hoary; front and sides of the neck ochreous yellow; feathers of the head and nape brown at the base, and alternately barred at the tip with black and white; upper part of the back, front and sides of the breast buffy white, crossed by narrow irregular bars of blackish brown; all the upper surface and wings buff, pencilled all over with dark brown, the pencillings being conspicuous on the back, and so minute on the wings as to be almost imperceptible; scapularies largely blotched on their inner webs with black; primaries and secondaries slaty black, the fourth, fifth, sixth, seventh and eighth primaries with an oblique mark of brownish white at the tip; basal half of the two centre tail-feathers buff, pencilled with brown, their apical half narrow, filamentous and black; lateral tail-feathers sandy red, crossed by three widely placed irregular bands of black, and tipped with buffy white; under surface buffy white, minutely pencilled on the breast with brown; legs of the same hue, but the feathers banded with faint bars of brown; bill and nails black.

Total length, $15\frac{1}{2}$ inches; bill, $\frac{5}{8}$; wing, 10; tail, $7\frac{1}{2}$; tarsi, 1.

*Hab.* Ladakh in Thibet.

*Remark.* Distinguished from the *S. paradoxus* by its much larger size, by the primaries not being extended into the filamentous form so remarkable in that species, and by the absence of any black colouring on the breast.

The only example which has come under my notice is in the possession of the Rt. Hon. the Lord Gifford, to whom I am indebted for permission to include a figure of it in my work on the 'Birds of Asia.'

Extraordinary as have been the new species discovered during the last few years, of that remarkable group the *Ramphastidæ*, no one is more singular than the bird which I now submit to the notice of the Meeting; it may be regarded as an evidence that all the members of the group are not yet known to us, and that the productions of the rich forests of the Cordillerian Andes appear to be inexhaustible. It had long been my intention to propose a generic name for the Andean group of Toucans, characterized by the dense villose clothing of the under surface, the colouring of which is of a uniform tint, instead of being crossed by bars of black, red and yellow as in the typical *Pteroglossi*; and at no moment could such a step be more appropriately taken than at the present, when characterizing a new species of this section, for which, indicative of the country in which the members are found, I propose the generic term of *Andigena*, and for the new species, *A. laminirostris*; the other species pertaining to this genus are *A. hypoglaucus*, *A. nigrirostris*, *A. cucullatus*, and *A. Baillonii*. The new species *A. laminirostris*, which is distinguished by the yellow laminæ near the base of the upper mandible, is the property of Dr. T. B. Wilson of Philadelphia, to whom and to his brother, E. Wilson, Esq., I am indebted for permission to describe this fine bird; the native habitat of which is the forests at the base of Pichincha, a high mountain of Ecuador.

### Genus ANDIGENA.

*Gen. Char.*—*Bill* stout, swollen, and moderately large when compared with the bill of the true *Pteroglossi*; *wings* and *tail* very similar to those of *Aulacorhynchus*. *General plumage* long, loose, and hair-like.

The species belonging to this genus are—

*Andigena hypoglaucus* (*Pteroglossus hypoglaucus*, Gould).
—— *cucullatus* (*Pteroglossus cucullatus*, Gould).
—— *nigrirostris* (*Pteroglossus nigrirostris*, Waterh.).
—— *laminirostris*, Gould.
—— *Bailloni* (*Pteroglossus Bailloni*, Wagl.).

All are characterized by a uniform wash of colour on the under surface, in lieu of the bars of rich red and black so conspicuous in the true *Pteroglossi*.

### ANDIGENA LAMINIROSTRIS.

Crown of the head and back of the neck deep black; upper surface golden brown; primaries black; rump pale sulphur-yellow; upper tail-coverts very dark green; tail dark slaty grey, four central feathers largely tipped with chestnut-red; under surface ashy blue; on either flank a large patch of rich yellow; thighs deep chestnut; under tail-coverts blood-red; orbits apparently orange; culmen and apical half of both mandibles black; a broad band on the base of the upper mandible and the basal half of the lower mandible deep blood-red; on either side of the upper mandible, immediately in front of the blood-red basal band, is a large buff-coloured plate or lamina, continuous with the structure of the bill at its base, but separate and detached in front, thin on its upper edge, but thicker and projecting beyond the edge of the mandible below; feet slaty blue.

Total length, 18 inches; bill, $3\frac{3}{8}$; wing, $6\frac{3}{4}$; tail, $6\frac{3}{4}$; tarsi, $1\frac{1}{2}$.

*Hab.* Neighbourhood of Quito.

*Remark.* The only example I have seen belongs to the collection of T. B. Wilson, Esq., of Philadelphia, and which has been kindly lent to me by his brother Edward Wilson, Esq., to enrich my Monograph of the *Ramphastidæ.*

Equally inexhaustible appear to be the Odontophorinæ or Partridges of America, for in the rich Museum of Leyden, I lately found a species which was previously unknown to me; it pertains to the genus *Odontophorus,* and I propose for it the name of *Odontophorus Columbianus.*

### ODONTOPHORUS COLUMBIANUS.

Crown of the head brown, minutely freckled with black; back of the neck washed with rufous; over each eye an indistinct mottled stripe; throat white, irregularly spotted, especially on the sides, with black; upper surface brown, washed with grey on the centre of the feathers, each of which is delicately pencilled with black, and has a narrow stripe of buff, bounded on each side by a narrower one of black, down the centre; those of the scapularies and wing-coverts have moreover a large patch of rich dark brown on the inner web near the tip, bounded above by two narrow lines, one of buff, the other of dark brown; primaries brown; secondaries brown, freckled and barred with dark brown, and washed with rufous; tertiaries brown, washed with grey and rufous, freckled with black, having a broad V-shaped mark of black near the tip, and broadly margined and tipped internally with deep buff; under surface reddish brown, each feather with a large irregularly-shaped mark of white margined with black near the tip; under tail-coverts, and vent mottled reddish brown and sandy buff; bill black; feet lead-colour.

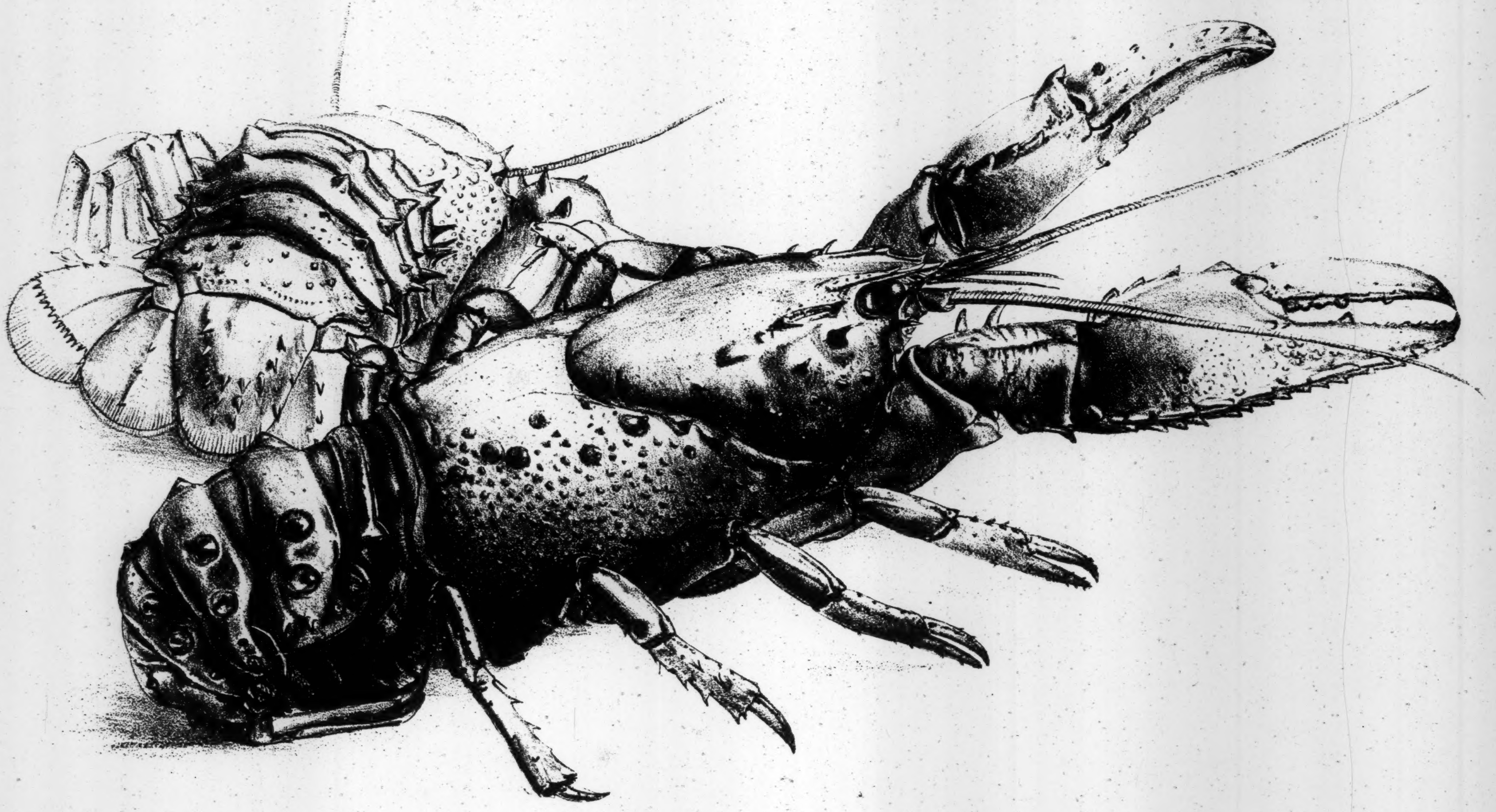
Total length, 11 inches; bill, 1; wing, $5\frac{3}{4}$; tail, $2\frac{3}{4}$; tarsi, 2; middle toe and nail, $2\frac{1}{4}$.

*Hab.* Caraccas.

*Remark.*—The fine specimen gracing the Museum at Leyden was transmitted by M. Landsberger, Netherlands Consul at Caraccas. There is also another specimen, from, I believe, the same locality, which differs in having the under surface of a nearly uniform greyish brown, with here and there a few of the white marks so conspicuous in the bird above described; it is also of a somewhat smaller size, but notwithstanding these differences, the two birds appear to be one and the same species.

The *O. Columbianus* has a stouter bill, and is of a larger size than *O. dentatus,* but is smaller than *O. Balliviani,* to which it is most nearly allied.

Proc Z.S Annulosa XV.



POTAMOBIUS SERRATUS.

W. Wing del. et lith.

Ford & George Lithographers. 54 Hatton Garden

Leaving America and India, and proceeding to Australia, I return to a country which has so long engaged my attention, to characterize a new genus of small creeping Insessorial Birds, nearly allied to the genera *Hylacola* and *Dasyornis*, under the name of *Pycnoptilus*, of which at present only a single specimen is known, and to which I beg to assign the specific name of *floccosa*; it is from New South Wales and the country towards the river Darling.

### Genus PYCNOPTILUS.

*Gen. Char.*—Bill much shorter than the head; gonys and culmen gradually descending; upper mandible notched at the tip; *nostrils* covered with a distinct operculum; base of the bill beset with very fine feeble hairs; *wings* very short, round and concave, the sixth primary the longest; *tail* short, rounded, feathers very broad and of a soft texture; *tarsi* strong, and somewhat lengthened compared with the size of the bird; hind-toe strong, and armed with a rather long claw; fore toes and nails rather feeble, the outer and inner toes of equal length; plumage dense, lengthened and silky, especially on the flanks.

### PYCNOPTILUS FLOCCOSUS.

All the upper surface, wings and tail rich brown; throat and breast sandy buff, the feathers of the latter with a crescent of brown near the tip; remainder of the under surface brown, approaching to white on the centre of the abdomen; under tail-coverts rusty red; bill and feet dark brown.

Total length, $6\frac{3}{4}$ inches; bill, $\frac{5}{8}$; wing, $2\frac{3}{4}$; tail, $2\frac{3}{4}$; tarsi, $1\frac{1}{4}$.

*Hab.* New South Wales.

*Remark.*—Received in a collection made on the upper part of the river Morumbidgee.

This form is somewhat allied to *Atrichia*, *Hylacola* and *Dasyornis*, but differs from all those genera in several particulars.

I cannot conclude this paper descriptive of several new and important birds, without congratulating the Society upon the means they possess of making known to the scientific world through their Proceedings and Transactions, spread far and wide as they are, not only over our own country, but I may say over the world, the many interesting objects which from time to time are brought before their Meetings; neither must I omit to bear testimony to the high estimation in which they are held by all the continental naturalists and every true lover of scientific research.

## 2. DESCRIPTIONS OF TWO SPECIES OF CRUSTACEA IN THE BRITISH MUSEUM. BY ADAM WHITE, ASSISTANT ZOOL. DEP. BRIT. MUS.

### POTAMOBIUS SERRATUS. (Annulosa, Pl. XV.)

Cancer serratus, *Shaw, Zoology of New Holland*, t. 8.

Beak shorter than the peduncle of the outer antennæ, with three teeth on the outside, above hollowed and slightly grooved down the middle, edges over the eyes considerably thickened. Hands, outside with a double row of serratures extending to near the end of the fixed claw; inside edge serrated with four teeth and one tooth at the end; moveable claw with six or seven teeth placed irregularly but chiefly on the ridge; claws elongated, inner edge with a few bluntish teeth, the end somewhat hooked. Wrist with each of the lateral edges furnished with two strong teeth or spines. Carapace smooth along the back; the sides of the front portion with a few spines, which on the lower part are almost reduced to tubercles; hinder part of the carapace separated from the front portion by a very deep groove, each of the sides in front with two spines; the sides of this portion are thickly covered with tubercles, which increase in size as they approach the back. Abdomen smooth on the dorsal line, the sides spined; the first segment with a large prominent spine on each side of the first segment; second segment with twelve or thirteen spines, four or five on each edge of the dilated part, the other two larger and situated on the sides; the spines are more or less conical and sharp, the one on each side nearest the back blunt; the third, fourth and fifth segments with eight spines each, placed transversely, the two inner bluntest; the sixth segment with ten or eleven small spines or tubercles; the seventh or terminal segment with seventeen or eighteen small sharp spines arranged in a crescent-like figure, the convexity being outwards. The two posterior pairs of legs with the penultimate joint on the outside furnished with two rows of serratures.

Carapace and legs in the dead specimen of a dirty yellowish brown hue, tinged on the carapace with red. In Dr. Shaw's figure, which slightly differs from Pl. XV., this crayfish is coloured of a bright red, the sides of the claws, carapace and abdomen, are tinged with blue; the specimens, however, were preserved in spirits. Dr. Shaw does not mention from what part of New Holland the specimens described by him were received; I cannot find any trace of them, neither does any author that I am aware of refer to his figure or description.

The species comes closest to the *Potamobius* (*Astacus*) *Franklinii*, described with three other Australian species of the same genus by Mr. Gray, in the Appendix to Eyre's Discoveries in Central Australia, vol. i. p. 409, t. 3. f. 1.

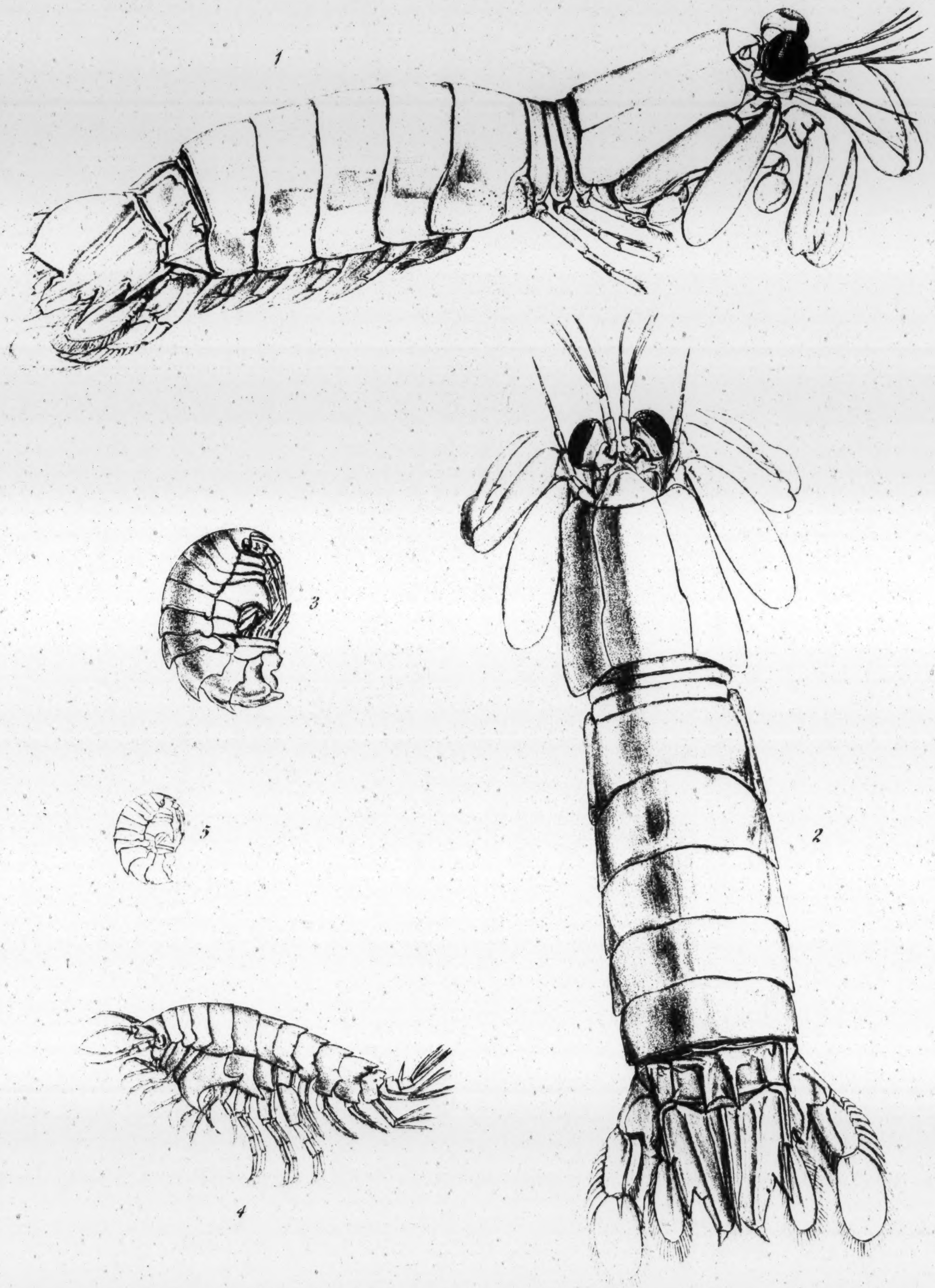
The specimen in the British Museum was found by Mr. Strange in freshwater creeks, Brisbane Water. Mr. Leicester informs me that the species is not uncommon also in the Richmond River.

### GONODACTYLUS CULTRIFER, n. sp.

(Annulosa, Pl. XVI. fig. 1, 2.)

In a Chinese collection, part of which was acquired by the British Museum, there occurs a *Gonodactylus* quite distinct from any of the species of this genus which have been described. This species enters into the second section of Prof. Milne-Edwards, in which the rostral plate is rounded, or scarcely pointed, in front. From the elevated compressed process on the seventh abdominal ring, this species may be called *G. cultrifer*.

The sides of the carapace are very thin and membranaceous. The rostral plate is wider than long, but not so wide as in the *G. scyl-*



1-2. GONODACTYLUS CULTRIFER
3-5. ACANTHONOTUS TESTUDO

Wing. del. et lith.

Ford & George, Lithographers, 54 Hatton Garden.

*larus*, neither is the tip so much deflexed as in that species. The raptorial legs are rather slender, and are considerably compressed, the base of the terminal joint is very slightly thickened, the terminal part elongated and knife-shaped, the inner edge with two teeth; tarsi of the three last pair of legs styliform; abdomen with the lateral margins of the first five segments thin and membranaceous, the fifth with a notch at the hind angle; the sixth segment with six slight crests terminating in short spines, the two middle approximating; the seventh segment with a sharp crest which rises nearly as high above its dorsal surface, as the space between its base and the edge of the segment; the end of this crest is pointed; the marginal teeth of the seventh segment are long and sharp, and have a slight ridge behind; the penultimate joint of the outer branch of the appendages to the sixth ring long, and furnished on the outer edge with a series of nine spines, which are depressed, and cover each other at the base. In the *G. scyllarus* there are twelve of these spines.

This species is about four inches long; in its dry state the greater part of the upper surface is tinged with a reddish hue, and along the middle of the back there is a pale line.

The species of the genus GONODACTYLUS are,—1. *G. chiragra*; 2. *G. scyllarus*; 3. *G. Edwardsii*, Berthold, Act. Göttingen. 1845, t. 3. f. 6; 4. *G. cultrifer*; 5. *G. styliferus*; 6. *G. graphurus*; 7. *G. trispinosus*. The *G. Edwardsii* is the species met with in nearly every box of insects and fish imported from China.

On the same plate with the *G. cultrifer* is figured an Amphipod, which *may be* the species figured by Colonel Montagu in the ninth volume of the 'Linnean Transactions,' t. 5. f. 5, under the name of *Oniscus Testudo*. I have named this on the plate *Acanthonotus Testudo*: it belongs to Prof. Owen's genus *Acanthonotus*: in the British Museum it bears Dr. Leach's manuscript name, *Vertumnus Cranchii*. The head is produced and pointed between the antennæ, and instead of the small number of segments assigned by Colonel Montagu to his *Oniscus*, there is the normal number of the various genera of Amphipoda.

## 3. DESCRIPTION OF A NEW PUPINA AND TWO NEW HELICINAS, FROM THE COLLECTION OF H. CUMING, ESQ. BY DR. L. PFEIFFER.

1. **PUPINA BILINGUIS**, Pfr. *P. testâ oblongo-ovatâ, tenui, pellucidâ, nitidâ, corneâ; spirâ sensim attenuatâ, obtusiusculâ; suturâ impressâ, vix callosâ; anfractibus* 6, *supremis* 3 *convexis, confertim striatis, sequentibus subplanis, lævigatis, ultimo* $\frac{1}{3}$ *longitudinis paulo superante; aperturâ verticali, subcirculari, bicanaliculatâ, canali utroque aperto, ascendente, supero laminâ validâ, linguiformi, triangulari formato; peristomate subincrassato, breviter expanso, margine columellari plano, linguiformi, acuto.*

Long. 10, diam. 5 millim.

*Hab.* in Australiâ orientali.

2. **Helicina intusplicata**, Pfr. *H. testâ depresso-globosâ, tenuiusculâ, lævigatâ, nitidâ, carneâ; spirâ breviter conoideâ, vix acuminatâ; anfractibus fere* 5 *convexiusculis, celeriter accrescentibus, ultimo rotundato, basi planiusculo; columellâ recedente, planâ, retrorsum in callum tenuem dilatatâ; aperturâ parum obliquâ, semiovali-subtriangulari, altiore quam latâ, ad columellam angulatâ et plicâ intus fere ad marginem decurrente munitâ; peristomate simplice, breviter expanso, margine basali ad columellam subangulato.*

Diam. 10, alt. 7½ millim.
Locality unkown.

3. **Helicina diaphana**, Pfr. *H. testâ subconoideo-depressâ, tenui, obliquè striatulâ, diaphanâ, nitidulâ, fulvo-lutescente; spirâ subelevatâ, apice obtusâ; anfractibus* 4 *planiusculis, ultimo obsoletè subangulato; columellâ brevissimâ, basi subnodosâ, in callum circumscriptum, sub lente granulatum retrorsum dilatatâ; aperturâ subobliquâ, semilunari; peristomate simplice, breviter expanso, margine basali leviter arcuato, in nodulum columellarem sensim transiente.*

Diam. 5, altit. 3⅓ mill.
*Hab.* Honduras; *Mr. Dyson.*

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### May 28, 1850.

William Yarrell, Esq., Vice-President, in the Chair.

The Secretary reported, that on the morning of the 25th of May he had the gratification of finding, on the arrival of the Peninsular and Oriental Company's steamer "Ripon" at Southampton, that the preparations which had been made in that vessel, and the precautions which had been taken by the Hon. C. A. Murray, for the safe transport of the Hippopotamus, had been eminently successful.

The animal had been assiduously attended during the voyage by Hamet Saafi Canana, to whom he had been entrusted since his arrival in Cairo on the 14th of November 1849, and towards whom he exhibits a very marked attachment. Mr. Murray, having returned to England in the "Ripon," had continued to direct this interesting undertaking to its final success. Captain Moresby and the officers of the "Ripon" had given every facility and assistance in their power throughout the voyage; and, owing to the liberal provision which had been made both in Egypt and at Malta, the supply of fresh water required for the animal's bath had been constant and abundant.

The Hippopotamus was shut into his house with Hamet about 10 o'clock A.M. The house was then hoisted by a tackle from the main deck, and safely lowered to a railway truck on the quay at the New Dock. As soon as the other animals were landed, and arranged for the journey to London, they were conveyed by special train to Nine Elms, and ultimately reached the Garden at 10 P.M.

The house in which the Hippopotamus and Hamet were inclosed having been taken from the waggon, the animal readily followed Hamet, on the door being opened, to the building which had been prepared for him. He had now been twelve hours out of the water; and as soon as he discovered the bath, which had been filled in anticipation of his arrival, he plunged into it with the most evident enjoyment. (Mammalia, Pl. XIX.) After this he fed freely on warm milk and meal, without exhibiting the slightest symptoms of fatigue, or of discomposure at the new situation in which he was placed.

The remainder of the collection, which had been gathered together by the unceasing energy of Mr. Murray, included—

*Felis leo*, ♀.
„ *jubatus*, ♂.
„ *chaus.*
*Genetta pallida*, Gray.
*Viverra civetta.*
*Herpestes ichneumon.*
*Canis niloticus.*
*Capra nubiana.*
*Gazella dorcas.*
*Sus aper*, ♀.
*Dipus ægyptius.*
*Gerbillus melanura.*
„ *tenuis.*
*Gyps fulvus.*
*Otogyps auricularis.*
*Casarca rutila.*
*Pelecanus crispus.*
„ *onocrotalus.*
*Psammosaurus griseus.*
*Gongylus ocellatus.*
*Scincus vulgaris.*
*Cerastes Hasselquistii.*
*Naia haje.*
*Coluber Cliffordii.*
*Eryx jaculus.*

Of these, the Lioness, the Chetah, the Ibex and the Wild Hog were gifts to the Society from H.H. the Viceroy, in addition to the Hippopotamus.

As if to make the 25th a still more memorable day in the annals of the Menagerie, another collection arrived within an hour of that which has been thus briefly mentioned. Lord Harris, Governor of Trinidad, desirous of making the opportunities of his important station available for the advancement of science at home, transmitted under the care of a trustworthy agent, and as a gift to the Society, a box of skins, which will be exhibited at a future meeting, and some beautiful living animals, among which there have arrived remarkable examples of the following species:—

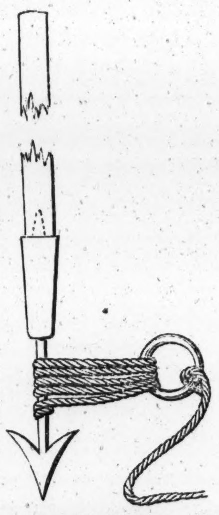
*Lagothrix Humboldtii.*
*Chiropotes satanas.*
*Penelope pipile.*
,, *cristata.*
*Boa constrictor.*

The imperfect knowledge which we possess of the zoology of Trinidad, and the proximity of that island to the Spanish Main, where so many interesting forms abound, render the support of Lord Harris a most valuable addition to the strength of the Society; and it is to be earnestly hoped that the liberal and unhesitating manner in which his Lordship, as well as the Governor of Singapore, have acceded to the applications which were made to them for assistance in promoting scientific objects, will be rivalled by the governors of our other colonies, who have necessarily effectual means of conferring the most important aid towards the progress of zoological inquiry.

The following papers were read :—

## 1. On Shark Fishing at Kurrachee. In a Letter from Dr. Buist, LL.D., F.R.S. etc., of Bombay, to Colonel Sykes. (Communicated by Colonel Sykes[*].)

There are thirteen large boats, with crews of twelve men each, constantly employed in the shark fishery at Kurrachee; the value of the fins sent to market varying from 15,000 to 18,000 rupees, or 1000 to 1200 rupees for each boat, after allowing the Banian or factor his profit. One boat will sometimes capture at a draught as many as one hundred sharks of different sizes. The fishermen are very averse to revealing the amount of their captures. Inquiries of this sort are supposed by them to be made exclusively for the purpose of taxation. The average capture of each boat probably amounts to about 3000, so as to give the whole sharks captured at not less than 40,000 a year. The Great Basking Shark, or Mhor, is always harpooned: it is found floating or asleep near the surface of the water; it is then stuck with a harpoon of the size and form indicated in the annexed woodcut.



Line, 600 fathoms.
Cane shaft, 8 feet.
Iron shaft, 1 foot 6 inches.
Barb, 5 inches.

The fish, once struck, is allowed to run till tired; it is then pulled in, and beaten with clubs till stunned. A large hook is now hooked into its eyes or nostrils, or wherever it can be got most easily attached, and by this the shark is towed on shore; several boats are requisite for towing. The Mhor is often 40, sometimes 60 feet in length; the mouth is occasionally 4 feet wide.

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[*] Dr. Buist's informant wrote from Kurrachee, in Scinde, to Dr. Buist in Bombay; who sent the analysis of the letter to Colonel Sykes; and Dr. Buist added the export of sharks' fins from Bombay.—W. H. S.

All other varieties of shark are caught in nets, in somewhat like the way in which herrings are caught at home. The net is made of strong English whip-cord; the meshes about six inches; they are generally 6 feet wide, and from 600 to 800 fathoms, or from three-quarters to nearly a mile, in length. On the one side are floats of wood about 4 feet in length, at intervals of 6 feet; on the other, pieces of stone. The nets are sunk in deep water, from 80 to 150 feet, well out at sea. They are put in one day and taken out the next; so that they are down two or three times a week, according to the state of the weather and success of the fishing. The lesser sharks are commonly found dead, the larger ones much exhausted. On being taken home, the back fins, the only ones used, are cut off, and dried on the sands in the sun; the flesh is cut off in long strips, and salted for food; the liver is taken out, and boiled down for oil; the head, bones and intestines left on the shore to rot, or thrown into the sea, where numberless little sharks are generally on the watch to eat up the remains of their kindred.

The fishermen themselves are only concerned in the capture of the Sharks. So soon as they are landed, they are purchased up by Banians, on whose account all the other operations are performed. The Banians collect them in quantities, and transmit them to agents in Bombay, by whom they are sold for shipment to China.

Not only are the fins of all the ordinary varieties of Shark prepared for the market, but those of the Saw-fish, of the Cat-fish, and of some varieties of Ray or Skate: the latter indeed acquires almost the size, aspect, and the form of the shark. The Cat-fish, known here by the same name as at home, has a head very like that of its European congener, from which it differs in all other respects most remarkably. The skin is of a tawny yellowish-brown, shading from dark brown on the back to dirty yellow on the belly. It is beautifully covered all over with spots of the shape and size of those of the leopard, similarly arranged.

The fishermen along these coasts are divided into four great castes, over each of which a head man or Jemadar presides: 1. Koolies; 2. Bundarries; 3. Sarras; 4. ——. One great Jemadar, or chief, rules supreme in the craft over all these fisher castes. Our informers at Kurrachee were a chief of one of the castes and his brother, two of the finest men I ever saw. They were 6 feet 3 inches each, properly made, and muscular in proportion, but not overgrown. They had brown beards, long black hair and bushy eyebrows, with fine white teeth, a singular openness of countenance and pleasingness of expression. They seemed greatly flattered by our inquiries, and most willing to give information on every point but one, that of the amount of sharks caught. They were quite delighted with the sketches I made of their boats and implements.

*Sharks' Fins exported from Bombay, chiefly to China,* 1845–46.
Weight, 8771 cwt. 50 lbs. Value, 182,316 rupees.

The following are some of the entries of imports of sharks' fins into Bombay in 1845–46:—

| | Weight. | | Value. |
|---|---|---|---|
| | cwts. | lbs. | rupees. |
| African Coast ........ | 104 | 28 | 2,118 |
| Arabian Gulf.......... | 1493 | 98 | 30,786 |
| Malabar ............ | 554 | 76 | 10,757 |
| Cutch and Scinde ...... | 1149 | 98 | 25,076 |
| Kurrachee........... | 589 | 81 | 13,096 |
| Konkan............. | 692 | 44 | 14,118 |

## 2. DESCRIPTION OF A NEW CRUSTACEAN.

### BY W. BAIRD, M.D., F.L.S. ETC.

CYPRIDINA ZEALANDICA. (Annulosa, Pl. XVII.)

The valves of the carapace are of an oval form, somewhat flattened, but convex in the centre, and concentrically striated. The striæ are numerous, close-set, and of a waved appearance. The surface of the valves is covered with minute punctations, which probably give origin in the fresh state to short hairs, though they are not visible in the dried specimens. The anterior extremity is slightly narrower than the posterior. The whole carapace is of a uniform white colour. The natural size is about one-fourth of an inch in length and one-fifth of an inch in breadth.

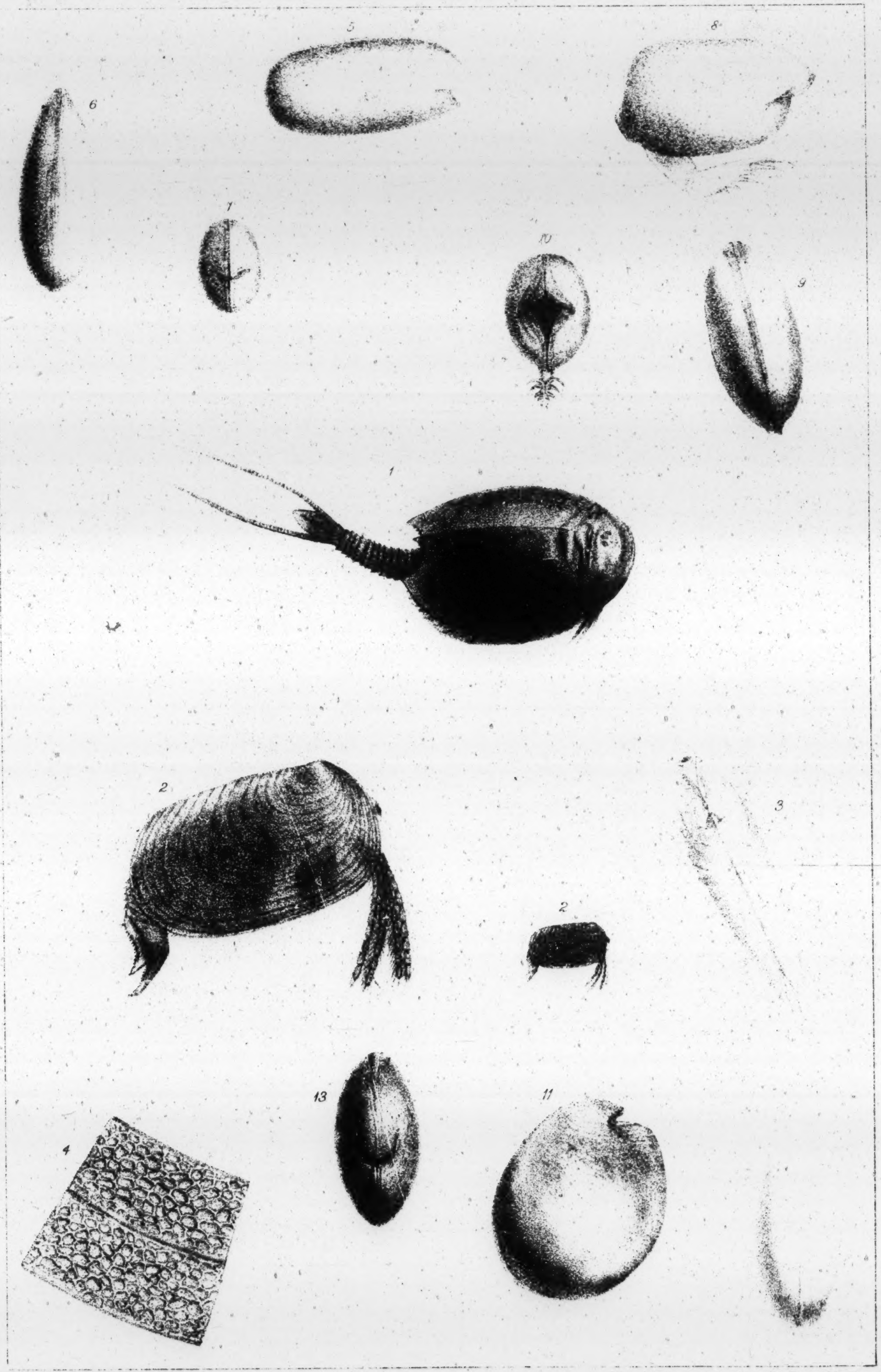
Two specimens were sent to the British Museum by the Rev. R. Taylor of Waimati, New Zealand, along with a collection of marine and freshwater shells, but without any history attached to them.

## 3. CONTRIBUTIONS TO THE ANATOMY OF THE TAPIR.

### BY H. N. TURNER, JUN.

A young American Tapir having unfortunately died in the Society's establishment, I have been enabled, through the kindness of Mr. Mitchell, to make some interesting observations on the structure of that animal; and I now propose to notice a few points, which I believe to be hitherto unrecorded, calling attention at the same time to certain interesting resemblances, both external and internal, existing between this form and those to which the more philosophic principles of modern zoology have proved that it is most nearly allied. Perhaps I may be permitted to recall the fact, that it was through the preference formerly given to those accounts which assigned to the Tapir a complex stomach, that Cuvier was led to abandon that method of subdividing the Ungulata, which Professor Owen has since shown to be the true one, and which, in the paper that I last had the honour to communicate, I have endeavoured still further to support. It is very possible that Cuvier, had *no* accounts of the anatomy of the Tapir been extant, might have followed up and established his original idea; for on external examination alone, characters fully suf-

Proc. Z.S. Annulosa Pl. XVII.



W. Wing del et lith

Ford & West, Lithographers 54 Hatton Garden

1 LEPIDURUS VIRIDIS. 2,3,4 ESTHERIA DAHALACENSIS.
5,6,7 CYPRIDINA MARIÆ 8,9,10 CYPRIDINA INTERPUNCTA
11,12,13 CYPRIDINA ZEALANDICA

BRITISH MUSEUM

ficient are presented to indicate the group to which it should be referred. The fore-foot, although from its having four toes it is apparently an exception to the Perissodactyle type, yet shows at a glance that the medius is the digit on which the body most immediately rests, instead of its being supported equally upon that and the annularis, which is the constantly prevailing character in the even-toed division. In the Tapir the annularis shares with the index a second-rate part in the function of support; and the little finger seems quite pushed aside, so that its presence is no more a true exception than is the absence of the corresponding toe in the hind-foot of the Peccary, where the even number is destroyed by being reduced to three. As in the other Perissodactyla, the Tapir has the prepuce short and wide, not reaching, as in the Artiodactyla, to the middle of the abdomen; and the penis (which is described by Professor Owen) resembles that of the Horse in being short, thick, and truncated. Another interesting external resemblance to the Horse is the elevated crest upon the neck, remarked upon by naturalists for its greater development in this, the common species, as a point of distinction from that discovered by M. Roulin in the mountainous districts of their habitat. This appendage, which adds greatly, in our domestic animal, to his characteristic majesty of form, has precisely the same structure in the Tapir, presenting, when cut into, the same hard fibrous substance well interspersed with fat.

With regard to the organs of digestion, I have scarcely anything to add to the observations already published. The small intestines in this specimen were about 12 yards long; and the fine villi, which clothe their internal surface, were, in the duodenal portion, tipped with a dark pigment. The cæcum was more than a foot long, and the fold of the colon 2 feet; the cæcum contained, like the stomach, large quantities of undigested food, while in the small intestines was little else but fluid chyle. The salivary organs, as usual in the Ungulata, are very largely developed; the parotids being of great extent, joining each other beneath, in front of the neck, and reaching up on each side to surround the base of the auricle. The molar glands, situated between the buccinator muscle and the mucous lining of the mouth, form a conglomerate mass, opening between two elevated ridges by a series of pores.

The generative organs, internally as well as externally, present a general conformity to the type usual in the Perissodactyla; but as the individual was young, it is perhaps as well to defer the publication of any details until they can be confirmed by the dissection of a fully-developed specimen.

A remarkable anatomical character, which I find the Tapir to possess in common with the Horse, is the singular membranous sac communicating with the Eustachian tube*. It is placed beneath the ear, between the stylohyal bone and the base of the sphenoid, and is of an irregular form, being accommodated to the parts adjacent; the tube itself runs as a groove along part of the upper surface of the sac, and opens into the posterior nares.

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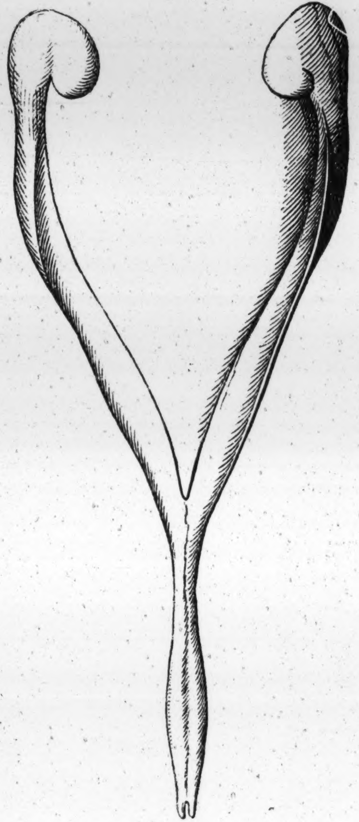
* They are called "guttural pouches" by veterinary anatomists.

## *Nasal bones and cartilages of the American Tapir.*

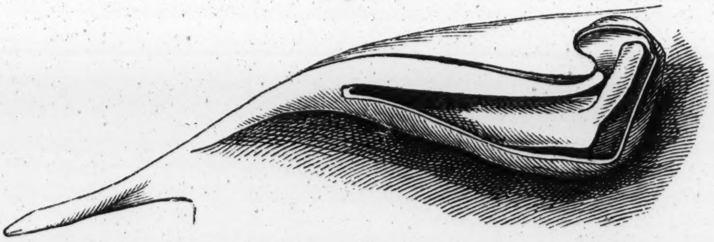
Fig. 1.



Superior aspect.

The dissection of the proboscis has afforded some points of interest. A brief description of its general structure, derived only from the dissection of a fœtus, is given by Cuvier in the 'Leçons d'Anatomie Comparée,' but some remarkable details seem not as yet to have been noticed. The deep notch on each side of the base of the projecting nasal bones, which forms so striking a characteristic in the skull, may be very readily, and probably always has been, presumed to be intended for muscular attachment; but its real office is to lodge the posterior termination of the lateral cartilage of the nose. These lateral cartilages, arising from that of the septum immediately beneath the ossa nasi, proceed outwards as usual, but the edge curls inwards, forming one entire convolution, of which the outer part forms posteriorly a flattened tube with a blind extremity, curved upwards, and its termination lodged in the notch alluded to. From the edge, which is of course concealed, a thickened linear prominence is continued upwards within the commencement of the blind tube, but, instead of following its curve, terminates in a rounded extremity. There is no trace whatever of the alar cartilages, the remainder of the proboscis being entirely of a soft substance. With the addition of the pair of

Fig. 2.



Lateral aspect.—A portion of the outer wall of the cartilage cut away to show the internal convolution.

special levator muscles, noticed both by Cuvier and by Professor Owen, in the possession of which the Tapir again resembles the Horse, the muscles of this organ are arranged upon the usual type. Their fibres radiate from a point just before the eye, some running backwards to form the orbicularis palpebrarum; others spreading upwards to the top of the proboscis, forming the compressor nasi; others proceeding downwards and forwards, to constitute the levator labii superioris alæque nasi. The depressor of the proboscis, and the orbicularis oris, are well developed, the latter muscle being very thick, especially in the under lip.

I have yet seen nothing to shake my opinion, that the structure of the larynx will one day become of great importance to the zoologist, although at present my opportunities have been far from sufficient to enable me to point out which peculiarities in its formation are truly characteristic of certain groups. In this case, therefore, I limit myself to the comparison of it with such as my collection possesses, namely with that of the Horse, as a near ally, and with those of the Peccary and the Sheep, as members of the other great Ungulate division. The os hyoides has the characters usual in the order; its stylohyal pieces agree with those of the Horse in being very narrow at their junction with the lesser cornua, and gradually widening, the reverse being the case in the Peccary and the Sheep. The latter animal, however, like most ruminants, has an intermediate piece at the junction of the stylohyal and the lesser cornu. The Tapir wants the sudden expansion of the upper end of the stylohyal, which is common in the Ungulata, and differs remarkably from the Horse in the small development of the true basihyal, and in the total absence of the strong epihyal process. The thyroid cartilage, however, agrees precisely with that of the Horse in the great obliquity of its alæ, in its median portion being much thickened above, and very deeply emarginated below; the Peccary and the Sheep presenting the reverse of each of these characters. The cricoid and arytenoid cartilages do not present any essential points of difference; but in the Peccary the cricoid is very peculiar in having its anterior part drawn down, so as to encroach upon four of the tracheal rings, and deeply emarginated above. In the interior of the larynx the Tapir has the superior and inferior ligaments well-marked, though not very prominent; the latter, or chordæ vocales, are slight, but sharp, folds in the mucous membrane; the former are thickened anteriorly. Just at the base of the epiglottis is a pair of arched openings, each leading into a small sinus, which extends upwards beneath the base of the epiglottis and inward thickening of the thyroid cartilage, and downwards in front of the anterior attachments of the superior ligaments. The Horse has, like the Tapir, a fossa excavated in the thickened upper part of the thyroid cartilage; and it would appear from Cuvier's remarks (who, however, had but a drawing to inspect), that the Rhinoceros has something similar. The Tapir entirely wants the lateral sacs observable in the Horse.

The muscles of this organ are arranged as usual. The homologues of the sternohyoid and sternothyroid muscles arise, as in some other animals, from the first pair of ribs and their cartilages; the latter muscles are but narrow. There is no separate stylohyoideus, the digastricus giving some fibres to the os hyoides. The Tapir also possesses the muscle whose fibres (to use the words of Cuvier) fill a portion of the interval of the two cornua of the same side. There is a double pair of thyro-arytenoid muscles, the upper being partly continuous with the transverse arytenoid muscle, and forming a powerful constrictor of the glottis.

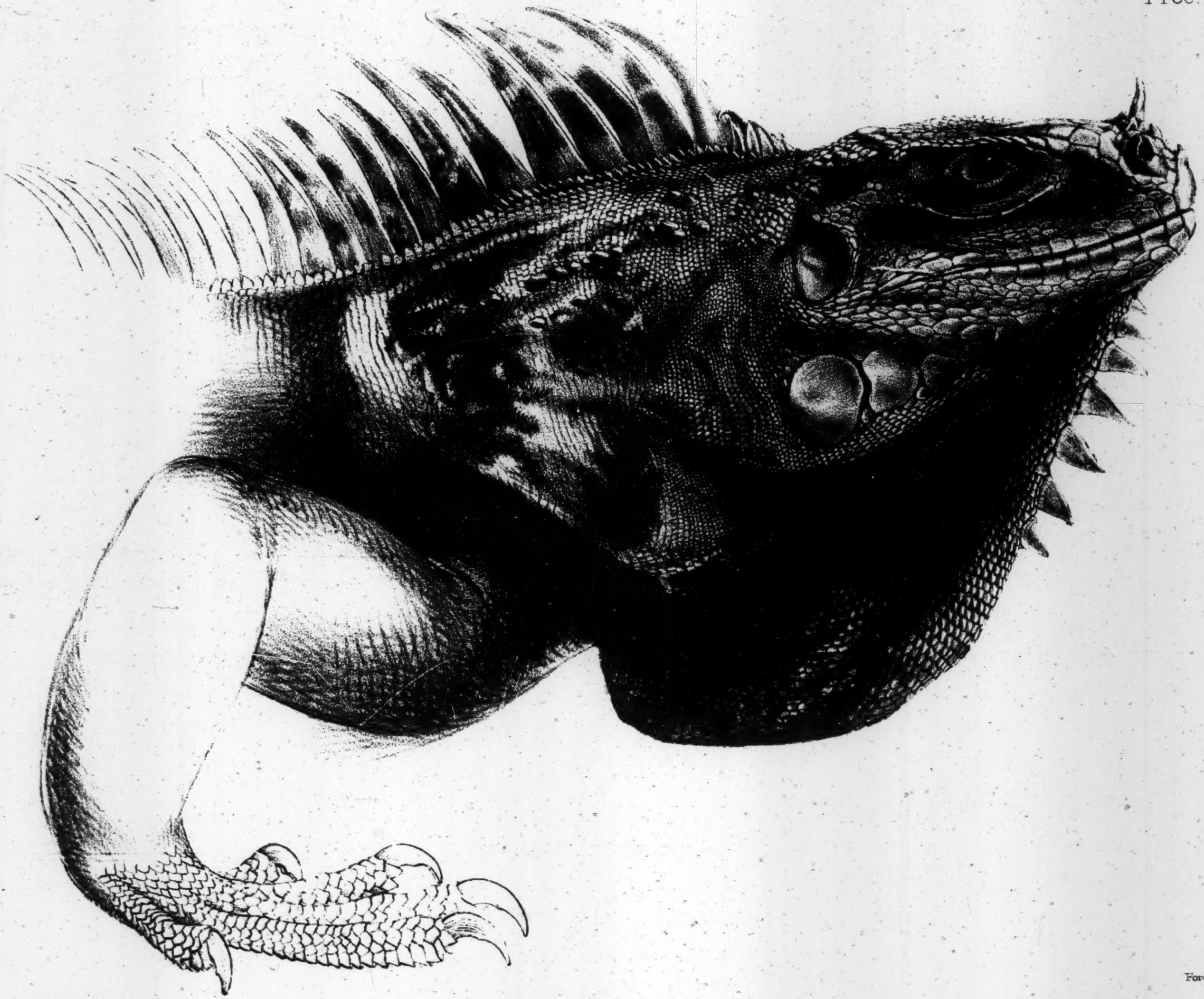
The muscles of the limbs formed also a portion of my investigations; but to point out all their peculiarities would involve the repetition of many that are known to be common to the Ungulata. A peculiar muscle arises near the top of the scapula, and covering the supraspinatus, joins the complex muscle formed by the union of the cleidomastoideus with portions of the trapezius and deltoid, called by the French anatomists "muscle commun de la tête, de l'encolure, et du bras." The levator scapulæ and pectoralis minor are wanting, as in the Horse. The coracobrachialis is a long slender muscle, reaching nearly to the inner condyle of the humerus. The brachialis anticus arises from the whole of the rounded posterior side of the humerus, immediately below its head; it consequently embraces and twists round this bone, to proceed to its usual insertion. The anconeus seems to be wanting, or confounded with the triceps. In the forearm, we find the pronator teres represented by a small bundle of fibres closely adherent to a tendinous ligament, which extends from the inner condyle of the humerus all down the sharp edge of the radius. In the hand, the special muscles of the outer toe are all well-developed. In the posterior extremity, the soleus is wanting, and the tibialis posticus is wanting also. The flexor longus pollicis is here, as in all the lower animals, the principal flexor of the toes, arising principally from the fibula, which is here well-developed, and receiving the small tendon of the flexor longus digitorum, after both have passed the ankle in their usual places.

All the organs were perfectly healthy, but the large veins were full of very dark blood, and considerable clots of fibrine were found, not only in the veins and heart, but even in the aorta. Numerous bruises, received in its journey from Liverpool, disfigured the exterior of the animal, and probably assisted, with the unusual coldness of the weather, in causing its premature demise.

## 4. On the Iguana of S$^{TA}$ Lucia, Metopoceros cornutus of Wagler. By Lieut. Tyler, R.E.

(Reptilia, Pl. III.)

This species attains a length of five, and sometimes even of six feet, the tail being about twice and three-quarters the length of the body. When first hatched it measures four inches. The tail is thick at its commencement, and is so connected with the body that it becomes difficult to define precisely their respective limits. The fore and hind legs are thick and muscular, with five toes on each, armed with strong hooked talons, by any one of which the animal can support



G. H. Ford, del. et lith.

Ford & West, Imp. 54, Hatton Garden.

IGUANA RHINOLOPHUS

itself. Of the fore-legs the third and fourth toes are the longest; and of the hind-legs the fourth toe is of an enormous length, and has five joints. Under the toes the scales form a double row of denticulations. The nostrils are large, oval, and not mobile, and above them are two horns, with five or six tuberculous excrescences between them and the nostrils, and surrounding the horns. The mouth is large, and armed with two rows of maxillary and two of palatal teeth, which appear simply to be intended to crop leaves and to provide the stomach with vegetable food. Each maxillary tooth is a little double-edged saw, and they are so lapped over each other that the reptile, in closing its mouth upon a leaf, cuts through it completely. The tongue is divided at the point, is very wide, and can be extended out of the mouth, although it is fastened to the interior of the lower jaw near its extremity. The tongue is curiously used by the animal to draw food into the mouth, and to forward it down the gullet, or to repel it at will, and the only use of the palatal teeth appears to be to secure the food while the tongue moves forward to afford fresh assistance in its journey down the throat*. Between the lower jaw and the chest is a pouch, which the animal draws in or extends simultaneously with the compression or swelling out of the body when enraged or excited. The portion of the gular pouch attached to the jaw is inflatable, and food is sometimes retained in it for a considerable period, but the lower part is merely extensible. On the anterior part of this pouch or dewlap, and immediately below the jaw, are from five to seven denticulations similar in substance and colour to the dorsal crest, but not so long.

This crest or mane commences behind the head, with three or four excrescences of different sizes, then suddenly becomes, in larger Iguanas, an inch and a half or two inches in length, and runs uninterruptedly down the back and tail, gradually diminishing, excepting above the commencement of the tail, where a slight increase again takes place, until, at the extremity of the tail, it is undistinguishable. The dorsal crest consists of about fifty protuberances, and the caudal crest of about 218, each of the latter becoming gradually harder as they decrease in height, and so altering their shape as to resemble, down the greater part of the tail, the edge of a saw.

The ear is covered by a thin scale, which gives to the touch, but does not seem sensitive. There is no external opening, nor does the sense of hearing appear to be very acute or much used by the animal, who trusts more to the eye to discover both his food and his enemies.

The eye is bright and prominent, and is protected by an inner cuticle as well as the lower eyelid; the upper lid not moving to aid in covering it, but only when the direction of sight is altered in a perpendicular direction. There are soft brows over the eyes of a spherical shape, and projecting above the remainder of the upper part of the head.

The general colour is bright green in the young and dirty grey in the old Iguanas, with about six black streaks across the body and

* The tongue is always covered by a glutinous secretion, which is perceptibly appended to the jaws when the mouth is open.

fifteen across the tail, each streak being darker towards the head, and gradually shaded off towards the tail. These streaks extend over the dorsal and caudal crests, which partake entirely of the variegations of the body in the younger, but, in the older individuals, are tipped with red and yellowish brown at their bases and extremities. These black streaks do not unite under the belly or under the anterior part of the tail, but towards the extremity of the tail they gradually elongate and become more dull, encircling the tail, and at last becoming hardly discernible, mixing with the green or grey into one dull tint.

The dewlap, as well as the folding skin in front of the shoulder, connected with it, is interspersed with black and yellowish brown, of which colours the denticulations of the dewlap also partake. The upper part of the head is of a darker and richer green in the young, fading as the animal advances in years, and becomes weather-beaten, as is the case with the human species, and with all animal and vegetable life. The whole of the under part of the body is of a lighter colour in both old and young. The female has a more delicate colour and general appearance than the male.

Whilst always retaining the same colours, this Iguana has the power of considerably changing his hues, but these changes are gradually performed. The colours become more dull as the period of the change of skin approaches, which is not, however, frequent. Each scale has its own tint, and the colours being thus irregularly blended, an appearance is given, particularly to the younger reptiles, very much like that of worsted-work. The colour of the eye is dark brown, the pupil being surrounded by a golden rim.

Every part of this curious reptile is covered with scales, and these are of every variety of shape and size. Those on the top of the head are large, smooth, and unequal; between them and the mouth runs a row of smaller scales, while the mouth itself is surrounded, both in the upper and lower jaw, by large scales terminated at the extremity between the nostrils, by one large brownish and softer scale in the upper jaw, and a similar though smaller scale meeting it in the lower jaw. From this latter, and below those immediately surrounding the mouth, is a range of scales or rather plates, each larger than its predecessor, terminated on either side by a very large plate under the auricle. Below this row of scales is the gular pouch (Fanon) covered by small, smooth scales. The eye is protected above by small, smooth, unequal scales, which also form part of the covering of the top of the head. The scales of the lower eyelid are peculiarly small and delicate; and a row of semispherical scales, resembling somewhat a string of small pearls on each lid, surrounds the eye. At the back of the head the scales become tuberculous, and a few on each side of the neck assume a pyramidal or rather a conical form. The scales of the neck and back are almost circular, but nearer the tail they become rhomboidal and carinated, their posterior points elongating, and their centres projecting more and more, both above and below, as they reach the extremity of the tail, so as to give it the form of a many-edged saw, the most severe edge being that presented by the caudal crest. The scales above the fore-legs are equal, carinated, and imbricated, assuming, at the foot and along the toes, a convex and smooth appearance. Under the fore-legs they are smaller, and peculiarly so at the joints and under the feet; the most delicate, however, are those under the leg, and connecting it with the body. The hind-legs are similarly clothed to the fore-legs, excepting that they are provided with a single row of femoral pores, fourteen or fifteen in number, and which increase in size with the growth of the reptile. These pores are large and fully developed in the male, but small and sometimes even hardly perceptible in the female.

The scales of the belly are very different from those of the back, being larger, equal, and carinated, although generally worn almost smooth in the old individuals. They are divided by a distinct line from the termination of the dewlap to the vent.

The Iguanas live principally in trees, and near the windward coast of the island. They are not much seen excepting in the months of February, March, and April, when they quit their hiding-places, and repair to the sea-shore or other sandy places to lay their eggs in the sand. The older females lay a great number of eggs; I have known an instance of one in confinement laying five in one day; and thirty-two, within the space of ten minutes, five days afterwards, making thirty-seven in all. I have taken the eggs from the bellies of small females in less numbers, such as eight, fourteen, and seventeen. They are not found in successive stages of advancement as in the hen, the tortoise, and many other animals, but all of the same size, and arrived at the same degree of maturity. Nor are the eggs always disposed, as I have seen it stated, in two rows, one on each side of the belly of the female. When very small, they are arranged in a long irregular cluster, closely packed together, and they seem to retain the same relative position as they increase in size. The eggs are very liable to destruction from ants, which fact probably accounts for their being usually deposited in sea sand. They are also hunted for and eaten by the *Pilori* (*Mus pilorides*), or "Rat Musqué," and by a bird called the "Trembler." They are soft and without any white, and their shell resembles the most beautiful kid used for French gloves, of a very light straw-colour. They are about the size of those of a pigeon, but rather longer; they vary however in dimensions, according to the age and size of the Iguana.

This Iguana is not averse to water, when not too cold, taking to it only when the sun is shining; in fact, not moving about much at any other time. Its mode of swimming differs from that of other lizards, inasmuch as it places its four legs close by the side of its body, and swims entirely with its tail. It dives with great facility, and remains sometimes for a considerable time under water. I believe that the Iguana never ventures into the sea. The tail is a very valuable limb; for besides being the sole means of swimming possessed by the animal, it is of great use in climbing trees, although not prehensile; and it is a most important weapon of defence, a blow from it being frequently sufficient to inflict a severe wound. In fact, this reptile is rather formidable when brought to bay in the woods. It is hunted by the natives with dogs trained for the purpose. The dog immediately upon scenting it gives tongue, and if on the ground, the dog seizes it by the back, and either kills it or maims it, which makes its capture easy; if in a tree, the Iguana is either shaken down, a matter ordinarily of no small difficulty, or the branch is cut off. It is almost useless to attempt to find these reptiles without dogs, as the resemblance of their colour to that of the trees they inhabit prevents them from being easily seen. Few dogs but those accustomed to the sport will touch them, as, in addition to the blows which they inflict with their tails, they bite and scratch furiously; and when once they lay hold of anything with their teeth, they can only be made to let go by an inducement to bite, some other attractive object being offered to them. They run into holes when chased, if an opportunity offers, and when their eyes are hidden from view, they fancy that their whole body is safely covered. The flesh, particularly of the female, is a great delicacy; it is cooked in various ways, sometimes in a fricassee, with the eggs whole, sometimes roasted or stewed. The eggs have a very glutinous taste. The flesh is said to disagree with some constitutions, although it does not, I believe, as has been asserted, disagree peculiarly with those persons who have been affected with venereal diseases.

This Iguana is said by some of the natives to eat lizards and insects, but I have opened several, and I have never succeeded in finding any but vegetable matter in the stomach, sometimes, however, covered with innumerable small worms, the eggs of which must doubtless have been swallowed with the leaves, fruit, or bark of trees, upon which, I conceive, it feeds entirely.

Unless caught young, it is very difficult to induce these reptiles to feed in confinement, and particularly when watched. Their disposition is sulky and savage, and I have known some of them die in confinement from starvation rather than feed. This has caused me to try the following plan, which I find very successful, of affording them nourishment. I hold them by the lower part of the body with one hand, and with the other I irritate them, until they open their mouths and attempt to bite, when I insert food; and by annoying them in this way, I have not only made them eat their natural food, but I have killed some of them by forcing them to eat corn, and leaves which appear to have disagreed with them.

This Iguana has a small rounded heart, reddish lungs, an oblong gall-bladder, a large dark-coloured flat liver, and a white, and very extensible oblong stomach.

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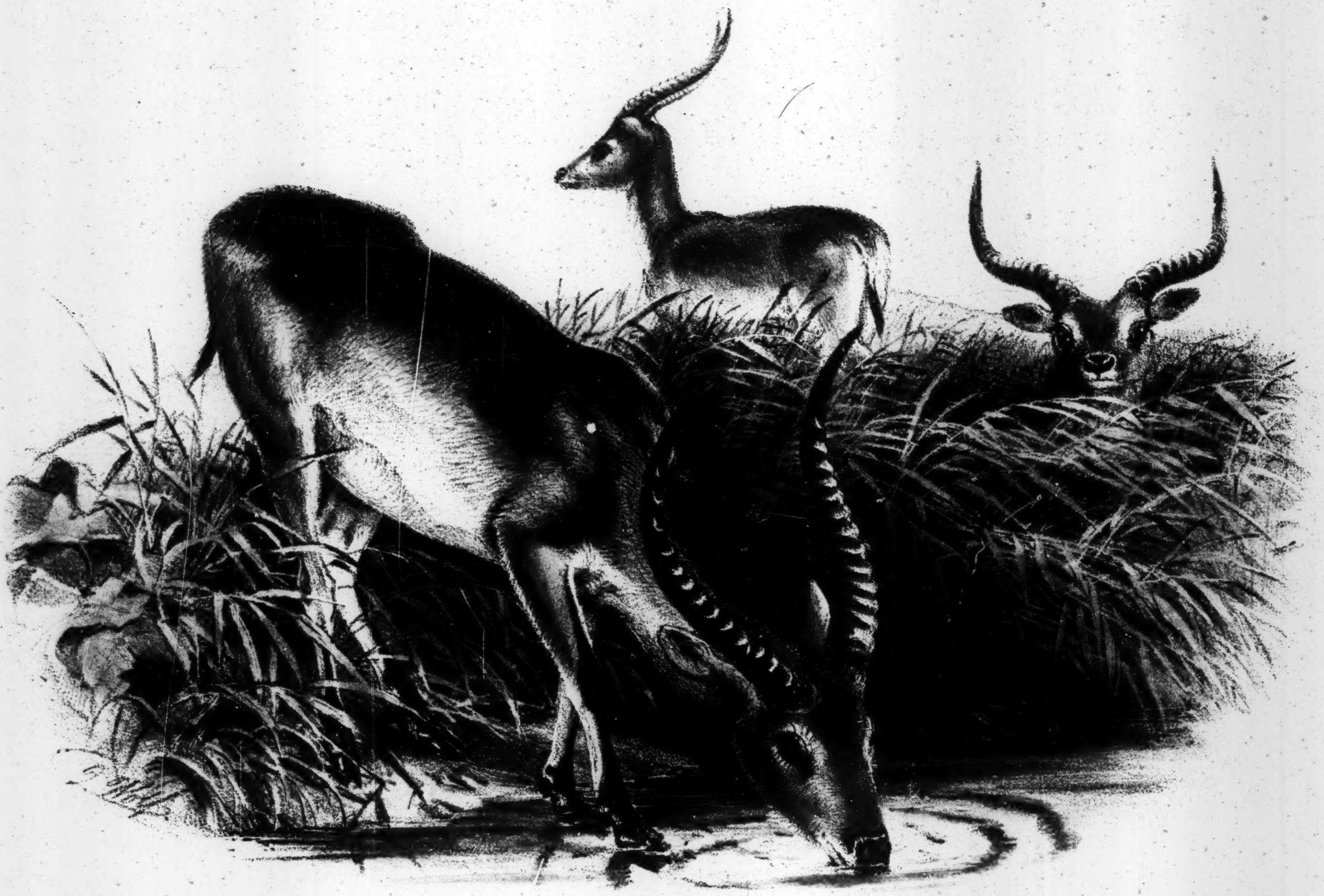

Wolf del et lith.

Printed by Hullmandel & Walton

ADENOTA LECHÉ Gray

June 11, 1850.

W. Spence, Esq., F.R.S., in the Chair.

The following papers were read:—

## 1. SYNOPSIS OF THE SPECIES OF ANTELOPES AND STREPSICERES, WITH DESCRIPTIONS OF SOME NEW SPECIES. BY J. E. GRAY, ESQ., F.R.S., P.B.S. ETC.

(Mammalia, Pl. XX.)

The genera in this Synopsis are arranged after the plan, first suggested in a paper on the genera of the Hollow-horned Ruminants (*Bovidæ*) in the 'Annals and Mag. of Nat. Hist.' xviii. 227.

## ANTELOPES.

The Antelopes contain a large number of species separated into several genera, which may be arranged in the following sections:—

I. The ANTELOPES OF THE FIELDS have a tapering nose, with the nostrils bald within.

1. The *True Antelopes* are light-bodied and limbed, and small-hoofed, with a short or moderate tail covered with elongated hair to the base; horns lyrate or conical.

2. The *Cervine Antelopes* are large-sized, rather heavy-bodied and large-hoofed, and have an elongated tail with short hair at the base and tufted at the end; horns lyrate or conical. (See p. 128.)

3. The *Caprine Antelopes* are heavy-bodied and limbed, and large-hoofed, with a very short, depressed tail covered with hair to the base; horns conical. (See p. 135.)

II. The ANTELOPES OF THE SANDY DESERTS have a broad nose, and the nostrils lined with bristles within.

4. The *Equine Antelopes* have the nose very broad, soft, spongy, and bristly. (See p. 138.)

5. The *Bovine Antelopes* have the nose moderately broad, with a black, moist muffle. (See p. 139.)

I. The ANTELOPES OF THE FIELDS. Nose tapering, the nostrils bald within, close together in front and diverging behind.

1. The TRUE ANTELOPES. Body moderate-sized, elegant; legs slender; tail moderately elongate, hairy; horns placed over the eyebrows.

A. *Horns lyrate (or rarely cylindrical, subspiral), strongly ringed at the base; nose ovine, without any naked muffle; deep inguinal pouches; and tear-bag generally well-developed.*

### 1. Saiga.

Horns short, strong, annulated, lyrate, white; nose very high, compressed, rounded; nostrils very close together; tear-bag distinct; fur soft.

**1. Saiga Tatarica.** The **Colus** or **Saiga.**

Pale yellowish, crown and back greyish washed; belly and anal region beneath the tail white; young, crown greyer.

*Capra Tatarica,* Linn. S. N. 97.—*Antilope Saiga,* Pallas.—*Ibex imberbis,* Gmelin.—*Antilope Colus,* H. Smith.—*Colus Straбonis,* Gesner.—*Colus Tartarica,* Wagner.—*Cervicapra,* sp. Blainv.—*Saiga tatarica,* Gray, Knowsley Menag. 3.

Inhabits Siberia. Cab. Brit. Mus.

### 2. Kemas.

Horns elongated, rather lyrate; nose with a dilated pouch on each side; tear-bag distinct? hair close, erect, spreading; nose-hole of skull very large; females hornless.

**1. Kemas Hodgsonii.** The **Chiru.**

Pale brown; chest, belly and inside of the limbs white; front of face and front of legs blackish.

*Antilope Hodgsonii,* Abel.—*A. Kemas,* H. Smith (not horns, t. 181. f. 6).—*A. Chiru,* Lesson.—*Kemas Hodgsonii,* Gray, Knowsley Menag. 3.

Inhabits Thibet. Cab. Brit. Mus.

### 3. Gazella, H. Smith.

Horns strong, lyrate, black; face tapering; nose simple; tear-bag distinct; fur short, close-pressed. Females with smaller horns; teats four.

* *Knees with tufts; back and rump brown, vent white.*

† *Lower part of side with a dark oblique streak; feet with a tuft of black hair beneath.*

**1. Gazella Dorcas.** The **Gazelle.**

Fur rather elongate and harsh, grey brown; outside of fore legs, broad oblique streak along the side, edge of anal disc, front of face and face-streak, dark brown; face-streak, throat, chest, belly, inside of thigh and anal disc, white; tuft at under side of feet and end of tail black; knee-tufts blackish; young, back and side-streak rather paler.

*Capra Dorcas,* Linn.—*Antilope Dorcas,* Pallas; Licht. 3. t. 5.—*A. Gazella,* Pallas.—*Gazella Kevella,* H. Smith, ♀.—*G. Corinna,* H. Smith, ♀.—*Gazelle,* Buffon, H. N. xii. t. 22–25. ♂.—*Kevel,* Buffon, H. N. xii. t. 26. ♂. not F. Cuvier.—*Corinne,* Buffon, H. N. xii. t. 27. ♀. t. 30 (not F. Cuvier); Cuvier, Menag. Mus. t. .—*Kevel gris,* F. Cuvier, Mam. Lithog. t. 3.—*Antilope Cora,* H. Smith.—

*A. Arabica*, Hemprich and Ehrenb. Symb. Phys. t. 5; Licht. Saugth. t. 6.—*A. Cuvieri*, Ogilby, Proc. Zool. Soc. 1840, 35; Frazer, Zool. Typica, t.

*Var.* Nose with a dark spot or streak.

*Var.* Larger, legs thicker.

*Gazella Dorcas*, var. Gray, Knowsley Menag. t. 3.

Inhabits N. Africa; shore of Red Sea; Mogador (*Willshire*).

The Earl of Derby has specimens which he calls *Gazella vera*, figured *Knowsley Menag.* t. 3; they are rather larger, greyer, and the legs are much thicker and heavier than the specimens from the shore of the Red Sea. The fur is similar, but not quite so long on the under side of the neck. The *Kevel gris* (F. Cuvier, Mam. Lith.) well represents this variety.

The *A. Cuvieri* of Ogilby, from Morocco, is a much larger animal than the common *G. Dorcas*, but agrees with it in other characters, except, it is said, in having longer ears.

M. F. Cuvier (Mam. Lithog. vii. t. 8. ♀.) has figured and described an Antelope from Sennaar under the name *A. leptoceros*, which he says is very like *A. Dorcas*, but has larger horns, those of the males being twice and of the females half as long again as the head. The horns vary greatly in length in our specimens.

### †† *Upper part of sides with a pale streak.*

### 2. Gazella Isabella. The Isabella Gazelle.

Fur short, very soft; pale yellowish brown, with a broad, rather paler oblique streak on the upper part of the side; knee-tufts, front of face and lower face-streak, darker yellow brown; upper face-streak, chest, back edge of tarsus, under side of feet, inside of limbs, belly and vent, white; tail black. Female, horns very slender, longer than the head. Young, paler, the lower part of the sides rather darker.

*Gazella Isabella*, Gray, Ann. and Mag. Nat. Hist. 1846.—*Antilope Iridis* (*Die Iris Antelope*), Licht.—*A. Dorcas*, Licht. Darstell. t. 5.—*A. Dorcas*, var. *a.* Sundevall.

Inhabits N. Africa; Egypt (*J. Burton, Esq.*), Kordofan (*Sundev.*).

This species is easily known from the foregoing by the softness and fineness of the fur, and the lower side-streak being of the same colour as the back, and from it and the following by having no dark edge to the anal disc.

### 3. Gazella subgutturosa. The Jairon.

Pale brown; upper part of sides with a broad, rather paler streak; crown and knee-tufts greyer; face-streak indistinct; nose, lower part of sides, belly, hinder side of fore and front side of hinder limbs and anal disc white; streak on haunches dark brown; end of tail blackish.

*Antilope subgutturosa*, Guldenst.; Pallas; H. Smith, Griff. A. K. t. 183. f. 5, horns.—*Capra Ahu*, Kœmp.—*A. Dorcas, var. persica*, Rüppell.—*Gazella subgutturosa*, Gray, K. Men. 4.

Inhabits Tartary, Armenia and North Persia. Cab. Brit. Mus.

Larger than the Chikara.

*** ***Knees with tufts; rump mark and throat-spots white: no dark side-streak; tail slender, compressed, only hairy above*** (*Dama*, Bennett).

4. **Gazella Soemmeringii.** The **Abyssinian Mohr.**

Pale brown; nose, forehead and lower edge of face-streak and end of tail blackish; chest and belly, angular mark on rump above the tail, face-streak and spot on the throat white; limbs pale. Female, forehead paler in the centre.

*Antilope Soemmeringii*, Cretzchm. in Rüppell, Zool. Atlas, t. 19 ♂.—*Gazella Soemmeringii*, Gray, K. M. 5.

Inhabits Lower Abyssinia; Sennaar. Brit. Mus.

5. **Gazella Mohr.** The **Mohr.**

Bay; chin, spot on throat, chest, belly, edge and inside of limbs and angular spot on rump above the tail white; spot on side of face and end of tail black.

*Antilope Mohr*, Bennett, Trans. Zool. Soc. i. t. 8; Knight, M. A. N. f. .—*A. Dama, var. occidentalis*, Sundevall.—*Gazella Mohr*, Gray, K. M. 5.

Inhabits Morocco. Mus. Zool. Soc. Portendic. There called *Seni-ci* (*Mr. Whitfield*). Mus. Brit.

The specimen in the Frankfort Museum, which was received from the Zoological Society, is one-third smaller than the *Andra*. It is brown, rump mark, lower part of the sides, belly, inside and edge of legs white, face iron-grey with longer hair at the base of the horns; horns large, thick, the face-streak indistinct from the pale colour of the head.

There is a fine specimen of this species living at Knowsley, and a female which died on the passage in the British Museum.

6. **Gazella Dama.** The **Nangeur.**

Bay; chin, spot on throat, belly, lower part of sides and hinder part of the back, inside of the limbs white; no spot on side of the face.

*Antilope Dama*, Pallas.—*Gazella Dama*, Gray, K. M. 5.—*A. rubra*, Afzelius.—*Nangeur*, Buffon, H. N. xii. t. 32. f. 3. t. 34.

Inhabits W. Africa; Senegal.

Not seen since Buffon's time; may be a bad figure of the former.

7. **Gazella ruficollis.** The **Andra.**

Whitish; neck and front part of the middle of the back reddish; no face-streak.

*Antilope ruficollis*, H. Smith, G. A. K. v. 205.—*A. Andra*, Bennett.—*A. Dama*, Licht. Saugth. t. 3, 4; Rüppell, Zool. Atlas, t. 14, 16; Ehrenberg, Symb. Phys. t. 6.—*A. Dama, var. orientalis*, Sundevall.—*Gazella ruficollis*, Gray, K. M. 5.

*Var.* Young? with an indistinct narrow brown streak across the outside of the thighs, and the forehead iron-grey, with longer hair at the base of the horns; horns small. Mus. Frankfort.

Inhabits North Africa; Kordofan. Brit. Mus. ♀.

These species differ in size as well as markings. The *Mohr* and *Andra* differ from *G. Soemmeringii* in being of much larger size, and in wanting the black face and streaks. Bennett's *Mohr* has only an angular white spot on the rump, like *G. Soemmeringii*; Buffon's *Nangeur* is smaller, and has more white on the rump, thighs and sides; and the *Andra*, which agrees with the figures cited, is almost all white, with a reddish neck and withers.

**** *Knees without tufts (but with rather longer hair, forming a linear keel in front); back and rump brown; sides with dark streak.*

8. GAZELLA RUFIFRONS. The KORIN.

Bay brown; sides above paler, with broad dark streak below; tail black; chest, belly, inside of legs, back edge of tarsus, and under side of feet and anal disc white; face bright bay, side-streak broad white.

*Gazella rufifrons*, Gray, Ann. and Mag. Nat. Hist.—*Kevel*, male, F. Cuvier, Mam. Lithog. t. 3.—*Corine*, F. Cuvier, Mam. Lithog. t. . young ♀.—*A. lævipes*, Sundevall.—*Gazella rufifrons*, Gray, K. M. 5. t. 4.

*Var*. Nose blackish above (adult ♀).

Young; pale yellowish, side-streak brownish.

Inhabits W. Africa; Senegal. Mus. Paris. Gambia (*Mr. Whitfield*), called *Seni*. Brit. Mus. Sennaar (*Sundevall*).

Buffon mentions a *Corine* as coming from Senegal, but he says it is smaller than the *Kevel*, and Daubenton says that it has knee-tufts, so that it cannot be this species. Indeed the *Gazelle, Corine* and *Kevel* of Buffon are clearly all *A. Dorcas* of this memoir.

The *Kevel* figured by M. F. Cuvier well represents this species. He says it was sent from Senegal, and probably it has not knee-tufts, for they are not indicated in the figure or mentioned in the text; for, like other descriptions of this author, though it occupies more than two pages, all the peculiarities of the species are left out. The *Corine* of the same author, also from Senegal, well represents the young. M. F. Cuvier says the *Kevel* and *Corine* and *A. Dorcas* form one species, but afterwards, under *Kevel gris*, he thinks they may be two.

### 4. PROCAPRA, Hodgson.

Horns strong, elongate, lyrate, black; face tapering, nose simple; tear-bag none; knee-tufts none; tail very short: female hornless; teats two. Asia; not gregarious.

1. PROCAPRA GUTTUROSA. The DSEREN.

Pale yellowish; hair long, soft, of anal region short, white; tail black.

*Antilope gutturosa*, Pallas, Spic. xii. 45. t. 2; H. Smith.—*Gazella gutturosa*, Gray, Knows. Menag. 3.

Inhabits Mongolia, Siberia. Cab. Brit. Mus., male and female. Thibet. Mus. Ind. Comp.

2. **Procapra picticauda.** The Ragoa or Goa.

Hair sordid, brown with pale rufous tips; under side, inside of ears, limbs and anal disc, reddish white; tail black.

*Procapra picticauda*, Hodgson, J. A. S. Bengal, 1846, 173. 334. t.

Inhabits Thibet; in the plains. Brit. Mus., skulls. Perhaps same as former in summer fur.

### 5. Tragops, Hodgson.

Horns lyrate, short, black; face tapering, nose simple; "tear-bag none;" teats two: females with small horns. India; not gregarious.

1. **Tragops Bennettii.** The Chikara.

Bay brown; sides uniformly coloured; knee-tufts, end of nose and tail black; streak on haunches blackish; face-streak, chest, belly and inside of limbs white.

*Antilope Bennettii*, Sykes.—*A. Christii*, Gray.—*A. Bharatensis*, Hodgson.—*A. Hazenna*, I. Geoff., Voy. Jacq. Mam. t. 6, bad?—*A. Dorcas*, var. E., Sundevall.—*Tragops Bennettii*, Hodgson, 1847.

Inhabits India. Cab. Brit. Mus.

The feet are generally blackish, but sometimes brown like the back.

### 6. Antidorcas, Sundevall.

Horns lyrate, short, black; face tapering, nose simple; tear-bag not remarkably distinct; back with an expansile white streak or fold; hair close-pressed; knees not tufted: females with small horns.

1. **Antidorcas Euchore.** The Springboc or Tsebe.

Pale brown; face, throat, chest, belly, broad expansile streak on back to base of tail, edge and inner side of limbs white; face-streak and middle part of forehead pale brown, side-streak oblique, dark brown: young paler; side-streak paler, back-streak distinct.

*Antilope Euchore*, Forster, Licht. t. 7; H. Smith; Harris, W. A. A. t. 3.—*A. saltatrix*, Link.—*A. marsupialis*, Zimm.—*A. Pygarga*, Blumenb.—*A. dorsata* and *A. saliens*, Lacep.—*A. Ibex*, Afzelius, 1810.—*Gazella Euchore*, Gray, Know. Men. 6.

Inhabits S. Africa. Brit. Mus.

### 7. Æpyceros, Sundev. MSS.; *Antilope*, Gray.

Horns elongate, wide-spreading, lyrate, black; face tapering, nose simple; knees not tufted, feet with tuft of (black) hair near pastern; teats two; no trace of suborbital sinus (*Harris*).

1. **Æpyceros Melampus.** The Pallah or Rooye Boc.

Bay, sides paler beneath; belly, anal disc and lower side of tail white; crown, anal streak and tip of tail blackish; tuft above feet and back of feet black.

*Antilope Melampus*, Licht.; H. Smith, t. 181. f. 7; Harris, W. A. Africa, t. 15.

Inhabits S. Africa. Brit. Mus.

### 8. ANTILOPE, H. Smith; *Cervicapra*, Gray.

Horns elongate, subspiral, erect, diverging; face tapering, nose simple; tear-bag large. India; gregarious.

#### 1. ANTILOPE BEZOARTICA. The ANTELOPE.

Grey brown; lips, orbits, chest, lower part of sides and belly, edge and inside of limbs white; nose, front of shoulder and outside of thigh, end of tail and front of feet blackish; neck redder.

*Capra bezoartica*, Aldrov.—*C. Cervicapra*, Linn., ? H. Smith.—*A. Cervicapra*, Pallas, Gray, Illust. Ind. Zool. t. .—*Antilope*, F. Cuv. Mam. Lith. t. . ♀.—*Cervicapra bezoartica*, Gray, Knowsley Men. 6.

*Var.* and young. A narrow pale streak on the upper part of each side.

*Antilope bilineata*, Temm., Gray, Illust. Ind. Zool. t. .

Inhabits India. Brit. Mus.

B. *Horns small, slender, straight, conical, tapering, more or less diverging and often bent forward at the tip; the muffle is generally large and moist.*

† *Tear-bag large; muffle generally large.*

### 9. TETRACERUS, Leach.

Muffle large; tear-bag large, longitudinal; horns, two pair very short, conical, straight; knee-tufts none: female hornless.

#### 1. TETRACERUS QUADRICORNIS. The CHOUKA.

Front pair of horns conical, distinct.

*T. quadricornis*, H. Smith, G. A. K. t. 181. f. 3. t. 186.—*Antilope quadricornis*, Blainv.—*A. striaticornis*, Leach.—*A. tetracornis*, Hodgson.—*A. Chickara*, Hardw.; H. Smith.—*T. Chicara*, F. Cuv. Mam. t. . ♂.—*Cervus albipes*, F. Cuv. Mam. Lith. t. . female.

Inhabits India, Himalaya. Brit. Mus. Thibet. Mus. Ind. Comp.

M. De Blainville in describing this animal has read *Moorshadabad*, the habitat, for *Hoornadabad*, and thought it the name of the animal.

#### 2. TETRACERUS SUBQUADRICORNUTUS. The JUNGLIBUKRA.

Front pair of horns rudimentary, tubercular; hinder horns conical, subcylindrical; pale brown; side rather paler; chest, belly, inside and front of legs whitish; feet paler, varied.

*Var.* Female, front of legs blackish.

*Antilope subquadricornutus*, Elliot, Madras Journ. 35. t. 4. f. 2.—*Brown Antelope*, Sykes.

Inhabits Madras. Brit. Mus. Larger than the former.

Mr. Hodgson, in MacClelland's Calcutta Journ. Nat. Hist. 1847, notices and figures five species of this genus: 1. *T. Iodes* (rusty-red), t. 4. f. 3, and 2. *T. paccerois* (full-horned), t. 4. f. 1, 2, from skull.

### 10. Calotragus, (part) Sundevall; *Oreotragus,* (part) Gray; *Redunca,* (part) H. Smith; *Tragulus,* H. Smith; *Cervicapra,* sp. Blainv.

Muffle large; tear-bag arched, transverse; horns subulate, elongate, erect; hoofs triangular, flattish beneath, acute in front; crown smooth; tail very short; groin and orbit nakedish: females hornless; teats four; the knees not tufted; inguinal pore none; ear elongate; false hoof small or none.

* *False hoofs none.*

1. **Calotragus Tragulus.** The **Steinboc.**

Fulvous, ashy; hair uniform; small spot on nose, and two diverging streaks on crown to nape blacker; upper part of throat, chest and abdomen white; ears three-fourths the length of the head; false hoofs none.

*Antilope Tragulus,* Forster, Licht. t. 14.—*A. rupestris,* H. Smith; Harris, W. A. A. t. 25. f. 2.—*A. campestris,* Thunb. 1811; Afzelius, 1815.—*A. pallida,* H. Smith.—*A. Pediotragus,* Afzelius.—*A. fulvorubescens,* Desmoul.—*A. rufescens,* H. Smith, G. A. K. t. 188.—*Calotragus tragulus,* Gray, Knowsley Menag. 7.

*Var.* Without the black crown-streaks, throat whiter.

Inhabits S. Africa. Brit. Mus.

This species varies much in colour, perhaps according to the season: sometimes the hairs are whitish at the tip, giving the fur a glaceous appearance; the black streaks are as distinct in the young as in the adult.

** *False hoofs small.*

2. **Calotragus melanotis.** The **Grys Boc.**

Red bay, with intermixed white hairs, crown with two dark streaks; ears two-thirds the length of head; false hoofs small.

*Antilope Melanotis,* Thunb. 1811; Afzelius; Licht. S. t. 12; Harris, W. A. A. t. 26.—*A. grisea,* Cuvier, D. S. N. ii. 244, 1816; H. Smith.—*A. rubro-albescens,* Desmoul.—*Calotragus melanotis,* Gray, Knowsley Menag. 7.

Var. *pallida.* Pale ashy white, hairs some white, others lead-coloured with grey tips. Brit. Mus.

Inhabits S. Africa. Brit. Mus.

### 11. Scopophorus, Gray; *Calotragus,* part Sundevall.

Muffle small, bald; tear-bag transverse; horns subulate, elongate, acute, slightly recurved at the tip; knees largely tufted; inguinal pores distinct and bearded; ears moderate, with a naked spot on the outside of their base; hoofs triangular, false hoof distinct.

1. **Scopophorus Ourebi.** The **Ourebi.**

Temple-spot small, indistinct; fur red-brown; cheeks paler; crown darker red brown; orbits, chest, belly, and middle of upper part of inner side of legs white; end of tail, arched line before the eye and spot between the ears black.

*Var.* End of nose blackish.

*Antilope Scoparius,* Schreb. Licht. S. t. 13.—*A. Ourebi,* Shaw; Lesson.—*Ourebi,* Buffon, not F. Cuvier.—*A. melanura,* Bechst.

Inhabits S. Africa, Cape of Good Hope. Brit. Mus.

2. **Scopophorus montanus.** The Gibari.

Temple-spot large, deep (more than half an inch over), naked; fur greyish brown; cheeks paler; crown red brown; orbits, chest, belly, under side of tail and middle of the inner side of the upper parts of the legs white; end of tail and arched line before the eye black.

*Antilope montanus,* Rüppell, Zool. t. .—*Scopophorus montanus,* Gray, Knowsley Menag. t. 5.

Inhabits W. and E. Africa; Abyssinia (*Rüppell*); Gambia. Called Gebari, or Mahomet's Antelope (*Earl of Derby*). Brit. Mus.

Very like the former, but grey brown, and the temporal spot much larger, deeper, more distinct and bald, both when alive and in the skin, so that it does not depend on the stuffing.

### 12. OREOTRAGUS, Gray, Sundevall; *Tragulus*, H. Smith, not Pallas.

Muffle large; tear-bag arched, transverse; horns subulate, elongate; hoofs squareish, high, compressed, much-contracted, concave beneath; false hoofs large, blunt; crown smooth; tail very short; hair thick, quill-like, spread out: female hornless; teats two.

1. **Oreotragus saltatrix.** The Kiansi or Klippspringer.

Dark brown, yellow grisled; hair grey, brown at the end, with a short yellow tip; beneath whitish; edge of ears and feet above the hoofs black.

*Antilope Oreotragus,* Forster; H. Smith; Licht. Saugth. t. 15.—*A. saltatrix,* Bodd.; Harris, W. A. A. t. 24.—*Oreotragus saltatrix,* Sundev.; Gray, Knowsley Men. 8.

Inhabits S. Africa; Abyssinia (*Rüppell*). Brit. Mus.

Varies in brightness and depth of colour according to the season.

### 13. NESOTRAGUS, Von Duben, Sundev. MSS.

"Muffle large, bald; lachrymal sinus deep, large; face and forehead not crested; ears large; horns in males large; false hoofs none; tail very short.

Very like *Neotragus* in form and character.

1. **Nesotragus moschatus.** The Nesotragus.

Reddish grey; belly white; feet pale red; hair of back brown, with a pale subterminal band and black tip.

*Nesotragus moschatus,* Von Duben; Sundev. Vet. Ac. Oefversigt, 1846, 221; Pecora, 134; Gray, Knowsley Menag. 8.

Inhabits Zanzebar, east coast of Africa. Male and female in the Stockholm Museum."

### 14. NEOTRAGUS, H. Smith; *Madoqua,* Ogilby.

Muffle none; nose ovine; nostrils close together; false hoofs very small; tear-bag roundish; tail very short; crown crested.

1. **NEOTRAGUS SALTIANA.** The **MADOQUA.**

*Antilope Saltiana,* Blainv.—*A. Hemprichianus,* Ehrenb. S. P. t. 7; Licht. Saugth. t. 16.—*Neotragus madoka,* H. Smith.—*A. Grimmia,* Rüppell.—*A. Hemprichii,* Rüppell, Abyss. 25.—*N. Saltiana,* Gray, Knowsley Menag. 8.—*N. Hemprichianus,* Sundev.
Inhabits Abyssinia. Brit. Mus.

†† *A glandular line on the side of the face, in the place of the tear-bag; and the muffle large and bald.*

### 15. CEPHALOPHUS, H. Smith; *Sylvicapra,* Ogilby, Sundev.

Muffle large; tear-bag none, but a naked, glandular line, formed of two series of pores, on the side of the cheek; crown crested, ending in a tuft between the horns.

* "*Knees and hind legs tufted; ears and horns elongate; tear-bag small, under the eye, and a narrow naked streak on cheek.*"

1. **CEPHALOPHUS? QUADRISCOPA.** The **FOUR-TUFTED ANTELOPE.**

"Buff, paler on the sides; tail, knee-tufts, front of nose, narrow inferior lateral and anal streak and streaks across legs blackish; lips, breast, belly, inside of limbs, vent and houghs white."
*Antilope quadriscopa,* H. Smith, G. A. K. iv. 261. t. 188.—*Cephalophus? quadriscopa,* Gray, Knowsley Menag. 8.
"Inhabits Senegal."
This species is only known from Colonel H. Smith's description and figure.

** *Knees not tufted; ears elongate acute; horns slender, elongated.*

2. **CEPHALOPHUS GRIMMIA.** The **IMPOON** or **DUYKER** or **DUYKER BOC.**

Yellowish brown, greyish in winter; hair yellowish, with blackish tip; forehead yellowish bay; inside of ears, chin, throat, abdomen and under side of tail white; feet, streak on the nose, up the legs, and upper part of tail black; ears elongate, nearly as long as head, acute; horns black, elongate, slender, base rugose and subangular in front.
*Capra Grimmia,* Linn. S. N. (ed. 10) 70.—*Moschus Grimmia,* Linn. S. N. (ed. 12).—*Antilope mergens,* Blainv. Bull. Soc. Phil. 1817; H. Smith, G. A. K. v. 264; Licht. Saugth. t. 11; Harris, W. A. A. t. 15.—*A. nictitans,* Thunb. Mem. Petersb. 1811, iii. 312.—*A. Burchellii,* H. Smith, G. A. K. v. 262. adult in summer?—*A. Ptoox,* H. Smith, G. A. K. v. 265? jun.?—*A. Platous,* H. Smith, G. A. K. v. 266.—*Ceph. Grimmia,* Gray, Knowsley Menag. t. 1. f. 1, t. 2. f. 1, 2.
Inhabits S. Africa. Brit. Mus.

This species varies greatly in the intensity of the colours and in the extent of the black on the feet and nose. In one young specimen in the British Museum the black on the nose is quite deficient; though it has the bright colouring of the breeding-season, and is bright bay on the crown.

The specimen in the Museum of the London Missionary Society (No. 8 Blomfield Street, Moorfields, formerly in Austin Friars), Case 5, described by Colonel H. Smith under the name of *A. Platous,* is the size and has the horns and ears of an adult *C. Grimmia,* but differs in being paler, and having no dark colour on the nose or feet; but it is evidently much bleached. It has certainly no relation to the *C. sylvicultrix,* with which Colonel Smith was afterwards inclined to place it as a variety (Griff. A. K. Syn. v. 344).

There are three species which have been called *Antilope Grimmia*:—

1. The *Capra sylvestris africana* of N. Grimm, Misc. Cur. Norimb. 1705, 131. t. 13, the authority for *Capra Grimmii,* Ray, Syn. 80, and Linn. S. N. (ed. 10) 70. *Moschus Grimmia,* Linn. S. N. ed. 12, from the Cape, of a dull grey colour. Probably the Duyker.

2. *Le Grimme* of Buffon, H. N. xii. 307. 329. t. 41. f. 2, 3, from a head sent from Senegal by Adanson; the *Antilope Grimmia* of Desmarest, F. Cuvier, and H. Smith, &c.; the *Cephalophus rufilatus.*

3. The *A. Grimmia* of Pallas, with large ears and a black streak to the horns, like *C. Campbelliæ,* but is from Guinea. I know of no species common to the W. and S. coast of Africa, so that it is probably yet to be distinguished.

The "*Fitomba*" or "*Philantomba*" appears to be the generic name of all the W. African *Cephalophi* or Bush Antelopes.

### 3. CEPHALOPHUS CAMPBELLIÆ. The BLACK-FACED PHILANTOMBA.

Grey and black grisled, beneath white; cheeks, neck and chest yellowish; forehead yellow, with a black streak on the nose widening on the forehead and ending in a tuft behind the horns; feet and front of fore-legs reddish black; fur soft; hair grey, with black ring and tip; ears elongate acute.

*Antilope Grimmia,* Pallas, Spic. Zool. xii. 18. t. 1?—*C. Burchellii,* var. (*C. Campbelliæ*), Gray, Cat. B. M. 162.—*C. Campbelliæ,* Gray, Ann. and Mag. Nat. Hist. 1846, 164; Knowsley Menag. 9. t. 2. f. 3.

Inhabits S. Africa. Brit. Mus.

This species is at once known from the Duyker by being much darker and distinctly grisled or dotted, and the under side being much whiter.

We have an adult female of this species sent us as *A. mergens,* var. *Burchellii,* by M. Sundevall (the other specimen of the same name being a true Duyker), and a young specimen which has been in the British Museum for several years, sent from Africa, under the generic name of *Philantomba,* by Mrs. Campbell.

The *A. Grimmia* of Pallas, Spic. Zool. i. 18. t. 3, which he describes as grey grisled, becoming brownish ash on the buttocks; throat, chest and beneath the body white; head and neck yellowish grey; a black streak between the horns, forming a fascia on the forehead and broader on the nose; fur softer than the Deer, but rough, of lower part of the neck rougher and more lax; feet and line on fore-legs blackish; tail black above; ears rather acute: inhabits Guinea; agrees in most respects with this species, but most probably is yet to be procured from W. Africa.

*** *Knees not tufted; ears moderate, acute; horns short, conical, thick.*

### 4. CEPHALOPHUS MADOQUA. The ABYSSINIAN BUSH BUCK.

Yellowish brown, slightly punctulated with black; neck yellowish; limbs blacker; face-streak and feet black; hair rather rigid, close-pressed, reddish grey at the base, end polished yellow brown, with dark tips; forehead reddish.

*Antilope Madoqua*, Rüpp. Abyss. t. 7. f. 2; Sundev.—*Madoqua*, Bruce's Travels, vii. 360. t. 56.—*C. Madoqua*, Gray, Knows. Men. 9.

Inhabits Abyssinia. Mus. Frankfort.

This species is very distinct from *C. coronatus*, being darker, and the fur more rigid and close-pressed.

### 5. CEPHALOPHUS CORONATUS. The RED-CROWNED BUSH BUCK.

Pale yellowish brown; middle of back and front of fore-legs varied with a few scattered black hairs; crown bright bay; crest blackish brown, bay in front; feet and streak up the nose blackish; inside of ears, chin, throat, chest, belly and inner side of legs whitish; horns short, conical; ears about half as long as the head, acute.

*Cephalophus coronatus*, Gray, Ann. and Mag. Nat. Hist. x. 1842, 266. 1846, 164; Knowsley Menag. 9. t. 6. f. 1, 2.

Inhabits W. Africa; Gambia, Macarthy's Island. Mr. Whitfield called it *The Coquetoon*. Brit. Mus.

**** *Knees not tufted; ears moderate, rounded; horns conical, thick; without any streak over the eyes.*

### 6. CEPHALOPHUS SYLVICULTRIX. The WHITE-BACKED BUSH BUCK.

Blackish brown, minutely grisled; hair brown, with whitish tips; back with a large yellowish white spot, narrow in front; throat, chest and belly redder; crown, nape and legs darker; horns —— ?

*Antilope sylvicultrix*, Afzelius, N. Act. Upsal. vii. 1238; H. Smith, G. A. K. t. 187.—*C. sylvicultrix*, Gray, Knowsley Menag. 10. t. 8. f. 1.

Inhabits Sierra Leone, in swampy places. Brit. Mus.

Varies in the size of the dorsal spot.

In the British Museum is a young male: length 29 inches; height 18; tarsus 6·9.

### 7. CEPHALOPHUS OGILBII. The BLACK-STRIPED BUSH BUCK.

Pale bay brown, with a deep black dorsal streak; beneath pale; crown and haunches brighter bay; neck and withers, and sides of the dorsal line varied with deep brown hairs; streak up the fore-leg, upper part of hock, feet (above the hoof) and end of tail blackish; horns short, thick, conical, very rugose on the inner front edges of the base.

*Cephalophus Ogilbii,* Gray, Ann. and Mag. Nat. Hist. 1842; Knowsley Menag. 10. t. 8. f. 2; Frazer, Zool. Typ. t. .—*Antilope Ogilbii,* Waterh. P. Z. S. 1838, 60. 1842, 129.

Inhabits Fernando Po (*J. Thompson, Esq.*). Brit. Mus. Not half the size of the preceding.

### 8. Cephalophus dorsalis. The Bay Bush Goat.

Dark bay; shoulders and legs darker; hair brown, a few on the haunches white-tipped; crown and nape, broad streak along the back to end of tail black; spot over each eye; lips, sides of chin, front of chest, under side of tail and inside of thighs pale brown.

*Cephalophus dorsalis,* Gray, Ann. and Mag. Nat. Hist. 1846, 165; Knowsley Menag. 10. t. 7. f. 1.

Inhabits Sierra Leone: called *Bush Goat*. Brit. Mus. The head is very large, the skull short, broad, forehead rounded.

### 9. Cephalophus niger. The Black Bush Buck.

Sooty black, greyer in the front half of the body; chin, throat, abdomen and inside of thighs grey; forehead and crown dark bay and black mixed: cheeks pale brown and black varied; tail, end whitish.

*Antilope niger,* Mus. Leyden.—*Cephalophus niger,* Gray, Ann. and Mag. Nat. Hist. 1846, 165; Knowsley Menag. 10. t. 7. f. 2.

Inhabits Guinea. British Museum. Sierra Leone (*Mr. Whitfield*). Knowsley Museum.

In the British Museum there is a male from the Leyden Museum, nearly as large as the former.

### 10. Cephalophus Natalensis. The Natal Bush Buck.

Bright red bay; nape, withers and feet varied with dark grey hairs; nose-streak short, blackish; lips, chin, upper part of throat and end of tail white; lower part of cheeks, throat and abdomen pale yellowish; crown and tuft bright red; horns short, conical.

*Antilope natalensis,* A. Smith, S. Afr. Quart. Journ. 217; Illust. Z. S. A. t. 32.—*Cephalophus natalensis,* Gray, Knowsley Menag. 10.

Inhabits S. Africa. Port Natal. Brit. Mus. Five specimens of different ages. Resembles *C. Ogilbii* in size and colouring, but wants the dorsal streak. The females are horned.

### 11. Cephalophus rufilatus. The Coquetoon.

Deep reddish bay; legs, nape, streak on the nose to the crown and broad streak on the back blackish grey; ears blackish; crest and upper part of tail black; cheeks rather paler; chin and abdomen pale yellowish; inside of ears whitish, with a brown spot on the outer side; horns conical, rather elongate, obscurely annulated, slightly recurved.

*Cephalophus rufilatus,* Gray, Ann. and Mag. Nat. Hist. 1846, 166; Knowsley Menag. 10. t. 9.—*Antilope Grimmia,* H. Smith, G. A. K. v. 266.—*Le Grimme,* Buffon, H. N. xii. t. 41. f. 2, 3?

*Var.* 1. Sides paler, greyish red; forehead rough.

*Le Grimme,* F. Cuv. Mamm. Lithog. t. . not good.

Inhabits Sierra Leone, called *Coquetoon.* Brit. Mus.

The hair is rather paler at the base, of the dorsal streak grey, with a blackish tip.

M. F. Cuvier's (Mamm. Lithog. t. .) figure is the pale variety, which Mr. Whitfield regards as distinct; he says it is called *Grimme* by the natives: the separate head of Cuvier's plate appears to have been taken from the *Guevei.*

**** *Knees not tufted; ears moderate, rounded; horns short, thick, conical; head with a pale streak on each side over the eyes to the base of the horns.*

### 12. CEPHALOPHUS MAXWELLII. The GUEVEI.

Grey brown or sooty brown; sides of head and body greyer; chin, throat, chest and belly whitish grey; abdomen and front of thigh white; broad streak over each eye to the base of the horns yellowish white; feet and end of nose rather darker; fur rather rigid; hair uniform.

*Antilope Maxwellii,* H. Smith, G. A. K. iv. 267.—*A. pygmea,* Pallas, Spic. xii. 18?—*The Guevei,* Buffon, H. N.—*A. pygmea (Guevei),* F. Cuv. Mamm. Lithog. t. . good.—*A. Frederici,* Laur.; Sundev. —*A. Philantomba,* Ogilby, P. Z. S. 1836, 121; 1839, 27.—*Cephalophus Maxwellii,* Gray, Knowsley Menag. 11. t. 12.

Inhabits W. Africa. Brit. Mus.

The adult male in the British Museum is bright sooty brown, darker near the rump; the female is nearly uniform pale grey brown. It is well figured by M. F. Cuvier. It is known from *C. monticola* by being larger, by the whiteness of the eye-streak, and of the front of the thigh and chest.

### 13. CEPHALOPHUS MONTICOLA. The NOUMETGE or CAPE GUEVEI.

Grey brown; streak over the eyes, legs and outer part of thighs rufous; feet grey brown; chin, chest, abdomen, and under side of tail and inside of ears white; fur soft, grey, with intermixed rather rigid black hairs.

*Antilope monticola,* Thunb. Stockh. N. H. xxxii. t. 5.—*A. cærulea,* H. Smith, G. A. K. v. 855; Daniell's Afr. Scen. t. ; Harris, W. A. A. t. 26.—*A. perpusilla,* H. Smith, G. A. K. v. 854.—*A. pygmea,* Licht. Saugth. t. 16; Sundevall.—*Cephalophus monticola,* Gray, Knowsley Menag. 11.

Inhabits S. Africa. Brit. Mus.

The colours vary in intensity; in a female in the British Museum, the rufous colour of the thighs and the white of the chest are more distinct than in the male, but this may depend on the season when they were killed. A very young fawn (perhaps hardly born), which was brought home from the Cape by M. Verreaux, is darker, and the reddish tint extends over nearly the whole body.

Thunberg described the South African species, but says that there is a specimen in the Stockholm Museum, brought by Afzelius from Sierra Leone, which agrees with his animal; so he evidently did not observe the difference between the two species.

### 14. CEPHALOPHUS MELANORHEUS. The BLACK-RUMPED GUEVEI.

Grey brown; throat and sides paler; rump and upper part of tail black; chin, chest, abdomen, back and front edge of thighs and under part of tail white; narrow streak over the eyes whitish; feet like the back; fur soft, pale grey, with intermixed rather rigid black hairs.

*Cephalophus melanorheus*, Gray, Ann. and Mag. Nat. Hist. 1846; Knowsley Menag. 11. t. 10.—*C. Philantomba*, Gray, Cat. Mamm. B. M. 163 (not H. Smith).

Inhabits Fernando Po (*J. Thompson, Esq.*). Brit. Mus.

This species is coloured like the *Guevei* from W. Africa, but smaller, and have the soft fur and interspersed black hair of the *Cape Guevei, C. monticola,* but they are easily known by the black mark on the rump.

### 15. CEPHALOPHUS PUNCTULATUS. The GRISLED GUEVEI.

Dark fulvous brown; sides and legs rather paler; narrow streak over the eyes and inside of ears pale brown; chin, throat, chest, belly and front of thighs and under part of tail white; hair grey at the base, with brown ends and yellow subterminal rings; crown and upper part of tail darker; feet pale, varied.

*Cephalophus punctulatus*, Gray, Ann. and Mag. Nat. Hist. 1846; Knowsley Menag. 11. t. 11. f. 1.

Inhabits Sierra Leone. Brit. Mus. A young specimen presented by Colonel Sabine, R.E.

It is at once known from the other *Gueveis* by the fulvous colour which is produced by the yellow subterminal rings of the hairs.

Colonel H. Smith indicates a species under the name of *C. Philantomba,* but so indistinctly, that it is impossible to know for what it is intended.

### 16. CEPHALOPHUS WHITFIELDII. The WHITE-FOOTED GUEVEI.

Yellowish ash; shoulders, outside of limbs and hinder parts of back rather darker; ears and crown pale yellowish brown; streak over the eyes, cheeks, throat, belly, inside of the limbs and ring round the feet above the hoof ashy white; hair ashy grey; of the back brown at the end, with a yellow tip.

*Cephalophus Whitfieldii*, Gray, Knowsley Menag. 12. t. 11. f. 2.

Inhabits Gambia (*Mr. Whitfield*). Mus. Brit. Young.

Smaller than the *Grisled Guevei,* and much paler and yellower.

### ***** *No tear-bag nor glandular streak on the face, and the muffle large and moist; crown smooth.*

### 16. NANOTRAGUS, Sundev.; *Neotragus,* part H. Smith.

Horns very short, conical; legs slender; tail subpectinate; hoofs small, triangular, false hoofs none; crown not crested; ears small, rounded.

1. **NANOTRAGUS PERPUSILLUS.** The **ROYAL ANTELOPE.**

Fulvous; throat, belly and edge of thighs and tip of tail white.

*Capra perpusilla,* Linn. Mus. Ad. Fred. i. 12.—*Moschus pygmeus,* Linn. S. N. (ed. 12) 92.—*Antilope pygmea,* Pallas, Spic. Zool. xii. 18; Cuv. D. S. N. ii. 241; H. Smith.—*A. regia,* Erxleben, 278.—*A. spiniger,* Temm. Monog.—*Nanotragus regius,* Gray, Knowsley Menag. 12.—*Royal Antelope,* Penn.

Inhabits W. Africa; Guinea. Brit. Mus.

The smallest-hoofed animal. The feet were formerly often used as tobacco-stoppers, and are figured mounted by Seba, t. 43. f. *a, b*; Buffon, H. N. xii. t. 42, 43.

### 17. ELEOTRAGUS, Gray; *Redunca,* H. Smith; *Cervicapra,* Blainv., Sundev.; *Nagor,* Laur.; *Sylvicapra,* Ogilby.

Horns conical, bent back and then forward at the top; hoofs and false hoofs rather large; tear-bag none; teats four; inguinal pores distinct.

† *Horns erect, slender, and face narrow; nose swollen; muffle large, extended far behind the nostrils; fur woolly hair.* **PELEA.** S. Africa.

1. **ELEOTRAGUS CAPREOLUS.** The **REHBOCK OR PEELE.**

Temple-spot none; head slender, compressed; horns erect, scarcely diverging, very slender; fur short, woolly, grey brown; back redder; throat and beneath white; end of nose and chin blackish; feet darker.

*Antilope Capreolus,* Thunb.; Afzelius, N. Act. Upsal. vii. 251. 1818; Licht. Saugth. t. 8; Harris, W. A. A. t. 25. f. 1.—*A. villosa,* Burchell, 1822; H. Smith.—*A. lanata,* Desmoul.—*Eleotragus Capreolus,* Gray, Knowsley Menag. t. 12. from life.

Inhabits S. Africa. Brit. Mus. Knowsley, living.

†† *Horns diverging, thick, conical; head broad; nose not swollen.*

* *Muffle large, extended far behind nostrils; fur grisled, harsh, straight, with a subterminal pale band, and often whorled; a naked spot on the temple.* South Africa.

2. **ELEOTRAGUS ARUNDINACEUS.** The **INGHALLA OR REIT BOCK.**

Head broad; temple-spot naked; horns diverging, conical, tapering. Brown, yellow grisled; hair pale brown, with a subterminal yellow band; cheeks and neck yellower; base of ears, chest, belly and insides of the legs and under side of bushy tail white; front of legs black.

*Antilope arundinacea*, Shaw, Zool.—*A. Eleotragus*, Schreb. Licht. t. 9; H. Smith; Harris, W. A. A. t. 26.—*A. redunca*, H. Smith; Gray, Cat. B. M.—*A. cinerea*, Afzelius, 1815.—*A. Lalandii*, Desm.; Fischer.—*A. Lalandiana*, Desm.—*Eleotragus arundinaceus*, Gray, Knowsley Menag. 12.

*Var.* Larger.

*A. Isabellina*, Afzelius, N. Act. Upsal. 1815, vii. 244; Licht. t. 10; H. Smith; Sundev.

*Var.* With a large black rhombic spot on the back of the head behind the ears. Female in Brit. Mus.

Inhabits S. Africa, in marshy places. Brit. Mus.

Afzelius, Lichtenstein, H. Smith and Sundevall have described two species of this genus as coming from South Africa; the smaller they call *A. Eleotragus*, and the larger *A. Isabellina*. The latter author has given a comparative character between the two kinds, but he has only seen two specimens of the former (a male at Berlin and a female at Stockholm), and several specimens of the larger kind. I have examined with care a series consisting of four males and five females from different parts of South Africa, and can find no distinction between them, except a slight difference in the length of the fur and in its colour. Two specimens in the British Museum are larger than the rest, and have the tarsus one-fourth longer than the others; they have a shorter fur and are of a rather brighter colour, and the front of the leg is blacker; but the fur and colour probably depend on the season when they were killed. In these respects they agree with Sundevall's description of *A. Isabellina*, but they both have the temporal spot large and quite naked, while Prof. Sundevall described the spot on this species as pubescent. The female of the larger specimen that has the black spot on the back of the head; some of the smaller ones have the temple-spot much smaller and less naked than the others. The two larger specimens have a single whorl of hair in the middle of the back; the others, with longer hair, show the whorls more distinctly, and have the hair from the central whorls to the shoulders forming a more or less diverging line. After examining these specimens and those in other collections, I conclude that they form only a single species. M. Sundevall, in a note just received, observes, "Mr. Wahlberg considers *A. Isabellina* and *A. Eleotragus* as very distinct, and our specimens seem to show a difference, though not very well expressed. Also I have committed a mistake, for the young female described in my Synopsis as γ. under *A. Isabellina*, is really *A. Eleotragus*."

** *The muffle smaller, scarcely extending beyond the nostrils; fur fulvous, not grisled; hair grey, with yellow tips; tail less bushy.* W. and E. Africa.

### 3. ELEOTRAGUS REDUNCUS. The WONTO or NAGOR, or RED ANTELOPE.

Head broad; horns conical, thick at the base, diverging; fulvous brown, rather pale on the sides; hair soft, yellow tipped, all in regular order; chin, throat, spot under ears and over eyes, inside of limbs, under side of tail and lower side of body white; front of leg sometimes blackish.

*Antilope redunca*, Pallas?; Rüppell, Abyss. t. 7, good.—*A. rufa*, Afzelius, 250, from Buffon.—*A. reversa*, Pallas?—*Nagor*, Buffon, xii. t. 46?—*Oureby*, F. Cuv. Mamm. Lithog. t. ♀.—*A. Isabellina*, Gray, Cat. Mamm. Brit. Mus.—*Eleotragus reduncus*, Gray, Knowsley Menag. 13. t. 13.

Inhabits "Senegal." Mus. Frankfort and Mus. Leyden. Gambia (*Whitfield*), where it is called *Wonto*. Male and fawn, British Museum, and a young male living at Knowsley, from the Gambia.

*Var*. Larger, colour brighter.

*A. Bohor*, Rüppell, Abyss. t. 7; Sundev.

Inhabits Abyssinia. Mus. Frankfort.

Pallas and Afzelius's account of this species is derived from Buffon's description; both he and Adanson (Hist. Nat. xii. 326) say that it is "all pale red," and Buffon further observes that it has not the white on the belly of the Gazelles. This does not agree with our animal, which is white in several parts, but certainly not so white as the Gazelle, and has black on the legs; but as yet no other animal has been brought from West Africa, which better agrees with their account or figure.

M. Sundevall considers specimens of the *Nagor* of Senegal and the *Bohor* of Abyssinia, in the Frankfort Museum, as distinct, the former having the hair of the back whorled, the fore-leg with a dark stripe, and the latter having the hair not whorled and the legs pale. Our specimens, from Gambia, have the hair not whorled, and more or less distinct streaks on the fore-legs; hence I am inclined to believe the *Nagor* and the *Bohor* to be alike. Sundevall's animal may be the *Kob*, but that has only one whorl on each end of the back, a nearly cervine muffle, and the end of the tail black.

When in Frankfort, I observed that the male *Antilope Bohor*, from Abyssinia, was rather larger than the male of "*A. redunca*," from Senegal, in the same collection, and much brighter, and the horns more slender; the female was darker and browner than the male; both sexes have more black on the carpus and tarsus than in the specimen of *A. redunca* in the same museum.

Colonel Hamilton Smith formed a genus for two pairs of horns on part of the frontal bones in the College of Surgeons belonging to this group of Antelopes, which he called *Raphicerus acuticornis* and *R. subulata* (Griffith, A. K. t. 181. f. 2, 1). The figures are not sufficient to identify the species, and we now know that the horns of the same species differ greatly in individuals of the same species, and during the growth of the same specimen. *R. acuticornis* may be the horns of the *Duyker Boc, Ceph. Grimmia*?

2. The CERVINE ANTELOPES have an elongated tail, cylindrical at the base, and with long hair at the end, often forming a compressed ridge; the body heavy and the limbs strong. They are of a large size.

### A. *Neck not maned.*

### 18. ADENOTA.

Muffle cordate, moderate, cervine; nose hairy between the back of the nostrils; horns sublyrate, ringed, when young rather recurved; place of tear-bag covered with a tuft of hair; hair of the back whorled, of dorsal line and back of head reversed; tail elongate, hairy.

This genus is very like *Eleotragus*, but has a smaller, more cervine muzzle and lyrated horns; it differs from *Cobus* in the form of the tail, and wanting the mane, and from both in having a tuft of hair in the front of the orbit.

#### * *Horns sublyrate; tail hairy.*

**1. ADENOTA KOB. The ÆQUITOON.**

Pale brown; end of nose, inside of ears, chest, belly, inside of legs and thighs, tip of tail, and band above hoofs white; front of fore and hind legs, and end of ears and tail black; hair of the dorsal line reversed, with a whorl on the shoulders and loins.

*Antilope Kob*, Erxl. from *Kob*, Buffon, H. N. xii. t. 32. f. 1? —*Kobus Adansonii*, A. Smith, from Buffon.—*Gambian Antelope*, Penn. Syn. 39, from Buffon.—*A. adenota*, H. Smith, G. A. K. iv. 224. t. 184. and t. 183. f. 3, 4. horns?

*A. Kob*, Ogilby, P.Z.S. 1836.—*A. annulipes*, Gray, Ann. and Mag. Nat. Hist. 1843.—*Adenota Kob*, Gray, Knows. Menag. 14. t. 14, 15.

*Var.* Female, hair longer, sides of face whitish.

*A. sing-sing*, Gray, Cat. Mamm. Brit. Mus. 159, not Bennett.

Inhabits W. Africa; Gambia. Called *Æquitoon* by the Joliffs, and *Kob* by the Mandingoes.

A fine pair has been at Knowsley some years. Thinking them new, I described them as *A. annulipes*. Mr. Ogilby has called it the *Nagor*, but it is scarcely the *Nagor* of Buffon. An adult male noticed by Mr. Ogilby as the *Kob* is now in the Museum of the Zoological Society; its horns, like the male at Knowsley, are much worn down. They whistle like a stag.

Buffon (H. N. xii. 219. 267. t. 32. f. 1) figures a skull with horns, brought from Senegal by Adanson, under the name of *Kob*, which is also called the *Petit vache brune*. Erxleben gave this figure the name of *A. kob*, and Pennant called it the *Gambian Antelope*, Syn. i. 39. The figures somewhat resemble the head of a half-grown male of this species, but the horns are longer, and have more rings than the specimen in the British Museum; but I am inclined to agree with Mr. Ogilby in believing that it was intended for this species. In the Jardin des Plantes they called the Sing-Sing the *Kob* of Senegal; this may be a mistake for the *Koba*. I may remark that the horns of the *Koba* in the same plate of Buffon are represented with more rings than are mentioned in the description.

Colonel Hamilton Smith describes and figures a male and female specimen which were alive in Exeter Change, and figures the male and its skull and horns under the name of *A. adenota*, which well agrees with this species, and has the peculiar distribution of its hair; hence its name: but he says, it has "a long open suborbital slit, and small black brushes on the knees;" but this I suspect must be a mistake, as he himself observes no lachrymal cavity was found in the skull. He might have mistaken the tuft of hair for the gland at the distance at which he saw the specimens. He also (G. A. K. iv. 221) described a specimen which was in Exeter Change, which he regarded as the *Gambian Antelope* of Pennant, and calls *A. forfex*. His characters agree in most particulars with this species, but he says it had "a long lachrymal sinus, and had small brushes on the knees." If there was not some mistake in transcribing these descriptions, both these animals should be *Gazellas*, but I have never seen any which agreed with them.

The young male in the British Museum shows the development of the horns of these animals. The upper rings of the growing horn fall off in large thick flakes as the horn increases in size beneath: this explains how the extent of the smooth tapering part of the horns increases in length as the horn grows, and how the number of rings are found to be nearly the same in the various ages, and different individuals of the various species. Mr. Whitfield informs me that the scrotum is rarely developed or dependent externally in different kinds of Antelopes before they have completed their first year.

### ** *Horns elongate, recurved at the tip; tail slender, end tufted.*

**2. Adenota Lechè.** The Lechè. (Mammalia, Pl. XX.)

Pale brown; orbits, chest and beneath white; front of legs dark brown; fur short, adpressed, upper part of nape and withers with a small whorl of hair; tail slender at the base.

*Léchee*, Oswell, Journ. Roy. Geog. Soc. xx. 150, 1850.—*Kobus Lechè*, Gray, Knowsley Menag. 23.

Inhabits S. Africa; bank of river Zouga, lat. 22° S. (*Capt. Frank Vardon*). *Oswell*, l. c. 150, Brit. Mus.

This animal is nearly as large as the *Water Buck*. The horns are very like those of that animal; the neck is covered with short adpressed hair, and has no appearance of a mane.

### B. *Neck maned on the sides.*

## 19. Kobus, H. Smith; *Cervicapra*, § Sundev.; *Ægocerus*, Harris; *Kolus*, Gesner, Gray.

Horns elongate, sublyrate, bent back and then forward at the top; muzzle cervine; tear-bag none; inguinal pores none; hair rough, elongate; neck covered with longer, diverging and drooping hair; tail rather elongated, depressed, hairy on the sides and below: females hornless; teats four; animal very large.

**1. Kobus Ellipsiprymnus.** The Photomok or Waterbuck.

Rump with a whitish elliptical ring near the base of the tail, brownish; horns converging at the tip.

*Antilope Ellipsiprymna,* Ogilby, P. Z. S. 1833, 47; Harris, W. A. Africa, t. 14.—*Kobus Ellipsiprymnus,* A. Smith, Illus. Z. S. A. t. 28, 29.—Gray, Knows. Menag. 15.

Inhabits S. Africa. Brit. Mus.

The horns figured as *A. Kemas*? (H. Smith, G. A. K. t. 181. f. 6) appear to belong to this species.

2. Kobus Sing-Sing. The Sing-Sing.

Anal ring none. Reddish or yellowish grey brown, rather greyer on the shoulders; nose, lips and hinder part of the thighs, under the neck, from the ears to the gullet, a streak over each eye, and ring above the hoofs and false hoofs white; belly and legs blacker; end of tail, and legs from shoulder to hough black. Female greyer; belly and upper part of legs paler.

*Antilope Sing-Sing,* Bennett, Waterhouse, Cat. Zool. Soc. Mus. 41. n. 378.—*A. defassa,* Rüppell, Abyss. t. 3.—*A. unctuosa,* Laur., D'Orbig. Dict. Univ. H. N. i. t. 622. ♂. good. —*A. Koba,* Ogilby, Penny Cyclop. ii. 79. fig. ♀; P. Z. S. 1836, not Erxleben.—*Koba,* Buffon, H. N. xii. 210, 267. t. 32. f. 2, horns?—*Senegal Antelope,* Pennant, Syn. 38 (part from Buffon only).—*Kobus Sing-Sing,* Gray, Knows. Menag. 15.

Inhabits N. and W. Africa; Senegal; Gambia, where it is called *Kassimause* and *Kob* (*Whitfield*). Brit. Mus. Abyssinia (*Rüppell*). Mus. Frankfort.

This species varies much in the tint of the colouring, and in the length of the hair in the different seasons. In summer they are covered with very short, closely pressed fur, letting the skin be seen between the hairs. In the cold weather, and in England, the fur is longer and more abundant. The hair of the chin and neck is long and rigid in all seasons, and even in the young animals. The tail of the adult specimen is cylindrical and nearly bald, ending in a tuft of black hair; in the young specimens, especially in the winter fur, the base of the tail is fringed with hair on each side. The male is much brighter coloured, and the chest and belly are nearly black like the legs. The hinder parts of the rump of the young animals are greyish white; in the older specimens it becomes pure white and broader in extent.

This animal is called *Sing-Sing* by all the negroes. They do not think their flocks of cattle will be healthy or fruitful unless they have one of the Sing-Sings accompanying them, as some persons think a Goat necessary to be in a stable in England. The English on the Gambia call it the *Jackass Deer* from its appearance, and it is called *Koba* and *Kassimause* by the negroes at Macarthy's Island. Its flesh is very strong, unpleasant, and scarcely palatable.

As far as I could judge by my recollection and description, the adult specimen at Knowsley, the young male and adult female in the British Museum, the male and female at Frankfort, and the adult male in the Paris menageries, are the same species.

Buffon figured (Hist. Nat. 210, 267. xii. t. 32. f. 2) under the name of *Koba* a pair of horns which were in the library of St. Victor at Paris. He described them as larger and more curved above than those of the *Kob,* eighteen inches long and five inches in circumference at the base, and he refers them to an animal which Adanson says is called *Koba* in Senegal, and the *Great Brown Cow* by the French colonists. Pallas refers these horns to *A. Pygargus,* and the figures and description agree in many particulars with the horns of that species; but they are rather longer, and have more rings. Pennant (Syn. Mam. 38) has given the name of *Senegal Antelope* to Buffon's short account and figure, but has added to it the description and the figure of the head of a skin which came from Amsterdam, and appears to be *A. Caama* of South Africa. Cuvier (Dict. Sci. Nat. ii. 235) has translated Pennant's name to *A. Senegalensis.* Erxleben (Syn. 293) and Zimmerman (Zool. 345) have translated Pennant's description of his skin of *A. Caama,* and called it *A. Koba,* referring to Buffon's description and Daubenton's figure. Fischer, Hamilton Smith and M. Sundevall regard the *Koba* of Buffon the same as the *Korrigum* of Denham and Clapperton, but the horns of that species are considerably longer and much thicker at the base than those described by Daubenton, and the annulations of the horns are higher and more regular: but it may be remarked that Buffon describes his horns as having eleven or twelve rings, but figures them as having seventeen or eighteen. Mr. Ogilby (Penny Cyclopædia and the Proceedings of the Zoological Society) considers Buffon's *Koba* to be the *Sing-Sing*; and in the length of the horns, and in the number, disposition and form of the rings, his figure more nearly agrees with the horns of that species than of that of the *A. Pygarga,* to which Pallas first referred it; but the horns are represented much more lyrated than any horns of the *Sing-Sing* I have seen; indeed, not one of the specimens which have come under my observation have had any inclination to assume that form: but as this is the only Western-African species which in any way agrees with Buffon's figure, perhaps it is best to adopt Mr. Ogilby's suggestion. The name of *Koba* or *Kob* appears to be common to many species. Schinz erroneously considers *Damalis Senegalensis, Antilope adenota* and *A. forfex* (H. Smith) as synonyms of this species.

### C. *Nape with a linear, central, compressed, recurved mane.*

### 20. Aigocerus, H. Smith; *Egocerus,* Desm.; *Hippotragus,* Sundev.

Horns conical, elongate, rather compressed, ringed, recurved; back of the neck with a linear reversed mane; tear-gland covered with a tuft of hair; teats two.

### 1. Aigocerus Equinus. The Etaak or Equine Antelope.

Spot above the eyes and pencil before the eyes fulvous grey; nose whitish; face black; nuchal mane distinct.

*Aigoceros Equina,* H. Smith; Harris, W. A. A. t. 21.—*A. glauca,* Forster.—*A. Osanne,* Geoff.—*A. barbata,* H. Smith.—*A. Truteri,* Fischer.—*A. aurita,* Burch. MSS.—*Capra Æthiopica,* Schinz.—

*Tzeiran*, Buffon, H. N. xii. t. 31. f. 6, horn.—*Aigocerus Equinus* and *A. leucophæus*, Gray, Knows. Men. 16.

Inhabits S. Africa. Brit. Mus. W. Africa; Gambia (*Whitfield*). Horns. Brit. Mus.

*Var.*? Smaller. "Fur glaucous grey; tuft before the eye short, brown; nuchal crest none; hoofs small."—*Sundevall.*

*Antilope leucophæus*, Pallas; H. Smith, G. A. K. v. t. 179.—*Aigocerus leucophæus*, Gray, Knows. Menag. 16.

Inhabits the Cape of Good Hope; now extinct. Mus. Stockholm, Mus. Upsal and Mus. Paris.

The head of the female covered with the skin from Macarthy's Island, on the coast of Gambia, which Mr. Whitfield brought home, did not appear to differ from the specimen from the Cape in the British Museum. The species does not appear to be uncommon in the locality, for Mr. Whitfield brought over several pairs of horns. He states the flesh is very good venison. "It is called *Dacoi* or *White Mouth* by the Mandingoes, *Kob* and *Koba* by the Joliffs, and *Vache brune* by the French at Senegal." This is certainly not the *Kob* of Buffon (xii. t. 32. f. 1, 2). The negroes at the Gambia declare that this animal never bears more than one fawn; for after that period, the horns increase in length, and enter the loins and destroy the animals!

Buffon (xii. 271. t. 31. f. 6) figures the horn of this species, which had been made into a powder-flask, under the name of *Tzeiran.*

*A. barbata* of Daniels appears to be only a bad drawing of this species.

The variety is the size of the Common Stag, *Cervus Elaphus.* M. Sundevall observes that it is as different from *A. Equina*, as the species of *Eleotragi* and *Tragelaphi* are from one another; and he observes, in a letter I have just received, "I must tell you, that after the inspection of a whole series of *A. Equina*, which Wahlberg brought home, I am convinced that the *A. leucophæa* of Pallas is a very distinct race. Our stuffed specimen, that must have been adult, has much smaller hoofs than the very young *A. Equina*, male as well as female, amongst Wahlberg's, and in the tuft over the lachrymal sinus, as I have shortly expressed in the printed survey."

When I examined the specimen at Paris I regarded it as a young or rather dwarf specimen of *A. Equina*, and the absence of the nuchal crest led to this belief; and I am not satisfied that the number of rings on the horns are a sufficient proof of its being adult.

2. **AIGOCERUS NIGER.** The **BLACK BOK.**

Black; female and young brown; face white, with a dark streak.

*Antilope niger* and *A. Harrisii*, Harris, Wild African Anim. t. 23.—*Aigocerus niger*, Gray, Knows. Menag. 17.

Inhabits S. Africa. Brit. Mus. Males and female and young.

### 21. ORYX, Blainv., H. Smith.

Horns elongate, subulate, ringed at the base, straight, or slightly arched, placed in a line with the face; neck maned above and below;

tear-bag none; nose subcervine, with a marginal muffle; hoofs narrowed in front, false hoofs large; teats four (two, *Harris*). In the skull there is a slight suborbital fissure, but no pit, and the grinders have supplementary lobes.

** Horns straight.*

### 1. ORYX GAZELLA. The KOOKAAM OR GEMSBOC.

Horns straight, shelving backwards; throat with a bunch of black hairs; black streak on the face, conjoined under the chin; rump, face, spinal line, lateral streak, and very broad band on the thigh and cubitus black in summer. Young pale brown; hairs blackish at the base.

*Capra Gazella,* Linn.—*Antilope Oryx,* Pallas; H. Smith.—*A. bezoartica,* Pallas.—*A. recticornis,* Erxl.; Pallas, Nov. Comm. Petrop. xiii. t. 10. f. 6.—*Oryx Capensis,* Ogilby; Harris, W. A. A. t. 9.—*O. Gazella,* Gray, Knows. Menag. 17. t. 16. f. 2, young.

Inhabits S. Africa; Cape of Good Hope. Brit. Mus. Adult and young.

### 2. ORYX BEISA. The BËISA.

Horns straight; throat without any bunch of hairs; black face-streaks separate. "Pale; face, belly and limbs white; front of face, two streaks on cheek, narrow line along throat, dorsal streak, streak on each side of abdomen, band round upper part, and streak in front of lower part of fore-leg and end of tail black."

*Antilope Beisa,* Rüppell, Atlas, t. 5.—*Oryx Beisa,* Sundevall.—*A. Dammah,* Rüppell.

Inhabits Abyssinia. Mus. Frankfort.

There is a male and female in the Frankfort Museum; they are smaller than *A. Gazella* of the Cape, and both have the face-streaks separate: there is a black streak on the throat, as in *A. Gazella,* but no bunch, nor is there any in the Frankfort specimen of *A. Gazella*: the mane of the nape of the male is small, indistinct, continued behind in a broader dark streak to the middle of the loins. In the male the mane is blackish, in the female like the back. They have no dark mark on the rump, found in *A. Gazella.*

*** Horns arched, recurved.*

### 3. ORYX LEUCORYX. The ORYX.

Horns slender, slightly arched: white, reddish varied; in winter greyish.

*Antilope leucoryx,* Pallas; Ehrenb. S. P. t. 3; Licht. Saugth. t. 1.—*A. ensicornis,* Ehrenb.—*A. Algazella,* Rüpp. t. .—*A. Gazella,* Pallas.—*A. bezoartica,* Erxl.; H. Smith.—*Algazelle,* F. Cuv. Mam. Lith. t. .—*A. Eleotragus,* Schreb. t. . (not descrip.)—*Oryx leucoryx,* Gray, Knows. Menag. 17. t. 16. f. 1, young; t. 17, adult.

Inhabits N. and W. Africa; Nubia; Sennaar; Senegal. Brit. Mus.

I have compared the Nubian and Senegal specimens, and cannot discover any difference between them.

D. *Throat slightly maned, neck simple.*

22. **ADDAX**; *Oryx*, part Blainv. and others; *Gazella*, part H. Smith.

Horns slender, elongate, ringed, slightly spirally twisted, nearly on a line with the face; neck with a slight gular, but no nuchal mane; nose ovine, hairy; hoofs semicircular, edged; tear-bag marked by a tuft of hair; forehead longly hairy.

1. **ADDAX NASOMACULATUS.** The **ADDAX.**

White; forehead and front of face darker; grey in winter.

*Antilope nasomaculatus*, Blainv. Bull. Soc. Phil. 1816, 78; H. Smith.—*A. Addax*, Licht. Saugth. t. 2; Rüpp. Atlas, t. 7; Mam. Lith. t. .—*A. suturosa*, Otto, N. A. Nat. Cur. xii. t. 48; Griffith, A. K. t. 180.—*A. gibbosa*, Savi.—*A. Tao*, H. Smith.—*A. Mytilopes*, H. Smith, G. A. K. t. 182, 183. f. 6.—*Strepsiceros*, Cajus.—*Addax*, F. Cuvier, Mam. Lith. t. . (winter and summer); Ehrenberg, S. Phys. t. 4, male and female.—*Capra Cervicapra*, Linn. S. N. ed. 10. —*Ant. Cervicapra*, Children, Denham Trav.—*Addax nasomaculatus*, Gray, Knows. Men. 17. t. 18.

Inhabits N. Africa. Brit. Mus.

3. The **GOAT-LIKE ANTELOPES** have a very short flat tail, hairy above. They have heavy bodies, covered with rough, rigid or woolly fur, strong legs, large hoofs and false hoofs. The horns are conical and recurved.

A. *Nose cervine, muffle moderate; horns short, inclined, recurved.*

23. **CAPRICORNIS**, Ogilby; *Nemorhedus*, part H. Smith.

Horns short, strong, conical, ringed, inclined and recurved, arising behind the orbits; nose cervine, muffle moderate, bald; tear-bag and interdigital pores large; skull with a more or less deep rounded pit, and no suborbital fissure; grinders without supplemental lobes. Asia.

1. **CAPRICORNIS SUMATRENSIS.** The **CAMBING OUTAN.**

Black; chin and linear nuchal mane yellowish, especially near the withers; inside of the ears white. Young like the adult.

*Antilope Sumatrensis*, Shaw; H. Smith, G. A. K. t. 189 (cop. from); F. Cuv. Mam. Lith. t. .—*A. interscapularis*, Licht.—*Capricornis Sumatrensis*, Gray, Knows. Menag. 18.

Inhabits Sumatra. Mus. Leyden.

2. **CAPRICORNIS BUBALINA.** The **THAAR** or **THAR.**

Grey brown, blackish washed; crown and dorsal line black; thighs and outside of legs rufous; nose, chin, inside of ear, lower part of mane and legs below the hocks whitish.

*Antilope Bubalina*, Hodgson, P. Z. S. 1832, 12.—*A. Thar*, Hodgson.—*Nemorhedus proclivis*, Hodgson.—*Capricornis Bubalina*, Gray, Knows. Menag. 18.

Inhabits India; Nepal. Mus. Brit.

A head was sent to the United Service Museum by Lieut.-Colonel Childers, of the 11th Dragoons, in 1820, under the name of *Serow* or *Imo.* "It is not speedy, as might be inferred from its make. Its flesh is very coarse and bad. It is usually killed with poisoned arrows."—*Hodgson,* l. c. 14.

3. **CAPRICORNIS? CRISPA.** The **JAPANESE GOAT ANTELOPE.**

Fur very fine, elongate, rather woolly, crisp; brown or brownish; feet and ears darker; throat whitish: female paler; tear-bag a naked spot?

*Antilope crispa,* Temm. Faun. Japan. t. 18, 19.—*Capricornis crispa,* Gray, Knows. Menag. 18.

Inhabits Japan. Mus. Leyden.

** *Nose ovine, hairy, without any muffle; horns short, conical, recurved, ringed.*

### 24. NEMORHEDUS, part H. Smith; *Kemas,* Hodgson.

Horns short, conical, inclined and recurved, arising from behind the orbits; nose ovine, hairy; muffle none; tear-bag none; interdigital pores large; fur short.

1. **NEMORHEDUS GORAL.** The **GORAL.**

Grey brown, black punctulated; streak on lower part of back of neck blackish; cheeks, chin and upper part of throat white; front of fore-legs blackish; feet rufous. Young paler; dorsal line rather darker.

*Antilope Goral,* Hardw. Linn. Trans. xiv. t. 14; Calcutta J. N. H. i. t. 12. f. 2, 3.—*A. Goural,* Hodgson.—*Bouquetin du Nepaul,* F. Cuv. Mam. Lith. t. . (copy from Hardw.)—*A. Duvaucellii,* H. Smith. —*Nemorhedus Goral,* H. Smith; Gray, Knows. Menag. 18.

Inhabits Nepal. Brit. Mus.

*A. Duvaucellii* (H. Smith) was described from a drawing traced from one of General Hardwicke's figures of this species, and badly coloured, which Duvaucel sent to Paris without any notes. It has no connection with *C. Sumatrensis,* to which many naturalists have referred it. In the Bengal Journal two Antelopes, said to resemble the *Goral,* are mentioned as found in Affghanistan, one called *Suja* and the other *Goomast.*

### 25. MAZAMA, Rafinesque; *Aplocerus,* H. Smith.

Horns small, conical, nearly erect, slightly inclined and recurved at the tip, ringed at the base; nose ovine, hairy; muffle none; tear-bag none: fur short, under fur woolly, outer very long, hairy and dependent.

1. **MAZAMA AMERICANA.** The **MAZAMA** or **SPRINGBUCK.**

White; horns, hoof and edge of nostrils black.

*Rupicapra Americana,* Blainv.—*Antilope Americana,* Desm.—*Capra Americana,* Rich. F. B. A. 268. t. 22.—*Ovis montana,* Ord.—

*Capra montana*, Harlan.—*A. lanigera*, H. Smith.—*Mazama dorsata* and *M. sericea*, Rafin.—*A. Mazama* and *Apl. Femmamazama*, H. Smith.—*Capra? Columbiana*, Desmoul.—*Rock Mountain Sheep*, Jameson, Mem. Wern. Soc. iii. 306.—*Mazama Americana*, Gray, K. M. 19.

Inhabits N. America; Rocky Mountains. Mus. Linn. Soc. and Zool. Soc.

### 26. RUPICAPRA, H. Smith; *Capella*, Keys. & Blas.; *Kemas*, Ogilby.

Horns elongate, slender, erect, recurved at the tip; nose ovine, hairy; muffle none; fur soft; skull without any pit, and with a minute suborbital fissure; grinders without supplemental lobes, cutting-teeth equal-sized, erect.

1. **RUPICAPRA TRAGUS.** The CHAMOISE or GERUS.

Brown yellowish, with a dark dorsal streak in summer, blackish in winter.

*Capra Rupicapra*, Linn.—*A. Rupicapra*, Pallas; H. Smith, G.A.K. t. 90.—*Rupicapra Tragus*, Gray, K. M. 19.—*R. Capella*, Bonap.—*R. pyrenaica*, Bonap.—*Tragus Dorcas*, Klein.—*Chamoise*, Buffon, H. N. xii. t. 16; F. Cuv. Mam. Lith. t. .

Inhabits S. Europe; Switzerland, Pyrenees, and Pindarus. Brit. Mus.

I have compared the Swiss, Pyrenean and Greek specimens, and cannot find any character to separate them.

### 27. ANTILOCAPRA, Ord; *Dicranocerus*, H. Smith; *Oreammos*, Rafin.; *Cervus*, Blainv.

Horns erect, the base compressed with a flattened process in front, the end conical, recurved; nose ovine, hairy; muffle none; fur very close; hair stiff, coarse, flattened, wavy; tail very short; false hoofs none; tear-bag none; inguinal pores none; legs rather slenderer than the other *Goat Antelopes*; skull without any suborbital depression, but with a lengthened fissure; grinders without supplemental lobes, cutting-teeth equal-sized and shelving.

1. **ANTILOCAPRA AMERICANA.** The CABRIT or PRONGHORN.

Pale fulvous; upper part of rump white.

*Antilope Americana*, Ord, 1815.—*A. furcifer*, *A. palmata*, H. Smith, Linn. Trans. xiv. t. 2, 3; G. A. K. t. 178. t. 199. f. 1–5; Richards. Z. B. A. t. 21.—*Cervus hamatus*, Blainv.—*C. bifurcatus*, Rafin.—*Antilocapra Americana*, Ord; Gray, K. M. 19.

Inhabits N. America; in the plains in summer and in the mountains in winter. Called the *Goat*. Mexico (*Coulter*). Brit. Mus.

Dr. Coulter brought a head from Mexico which had the face dark brown, and the horns large, wide-spreading and much hooked at the tip, like the *A. palmata* of H. Smith (Proc. Zool. Soc. 1826, 121). This is probably only a larger variety in the summer fur.

II. The **ANTELOPES OF THE DESERT.** Nostrils bearded within beneath, operculated, far apart; horns on the frontal ridge; nose subcervine, with a small muffle; legs rather stout; tail elongate; hoofs rather large.

4. The **EQUINE ANTELOPES** have a very depressed, spongy and bristly muzzle.

### 28. CATOBLEPAS, Gray; *Connochætes,* Licht.; *Bos,* Forster.

Horns bent down on the sides, recurved at the tip; nose very broad, dilated, spongy, bristly; nostrils operculated; tail elongate, bushy, hairy from the base; hoofs compressed in front; teats four.

This genus has been placed with the Oxen by Forster, and in the Bovine group of genera by Sundevall, but it has all the characters of the true Antelopes in the proportion of its leg-bone.

* *Nose with a crest of reversed hair; chest maned.* Catoblepas.

1. **CATOBLEPAS GNU.** The **GNU** or **KOKOON.**

Nose with a tuft of reversed hair; chest maned. Brown or blackish; the lower part of the mane and tail often paler or white. Young: pale fulvous; nasal, gular, and nuchal mane black.

*Antilope Gnu,* Sparm.; Zimmerm.—*Bos Connochætes,* Forster.—*Antilope taurina,* Burchell.—*C. Gnu,* H. Smith.—*C. taurina,* H. Smith, not A. Smith.—*Gnu,* F. Cuvier, Mam. Lith. t.  ; Harris, W. A. A. t. 1.—*Catoblepas Gnu,* Gray, Knows. Menag. 19. t. 19. f. 1, young.

*Var.* Mane and tail black.

*A. taurina,* Burchell; A. Smith.

Inhabits S. Africa. Brit. Mus.

The *A. Gnu* of Burchell, H. Smith, F. Cuvier and Harris, "and the *Kokong* of Lichtenstein," has a white tail and mane. Burchell and H. Smith have given the name of *A. taurina* to the specimens, which have those parts black. When young they are fulvous, and become black as they reach maturity. The specimen of the *Kokoon* in the Museum of the London Missionary Society (Blomfield Street, Moorfields), named by Colonel H. Smith *Kokoon* (*Cat. taurina,* Griff. A. K. iv. 369, v. 368), is an adult common *Gnu, C. Gnu* (*Var.* mane and tail white; *Kokong,* Licht. Trav. Cape), and his description of Dr. Burchell's specimen in the British Museum agrees with the *Gnu,* in having the ridge of hair on the face. Indeed Dr. Burchell (Travels, ii. 278) appears to consider the difference between the *Gnu* and *A. taurina,* that the former has a white and the latter a black tail. Dr. Andrew Smith (Illust. Zool. S. A.) has regarded the *C. taurina* and *C. Gorgon* as the same species. Dr. Sundevall, in his Synopsis, has, by mistake, given the name of *C. taurina* to the *Gorgon,* or *Brindled Gnu* (*C. Gorgon,* H. Smith).

** *Nose with smooth hair ; chest not maned.* Gorgon.

2. **Catoblepas Gorgon.** The **Gorgon.**

Face convex, smooth, covered with hair, lying towards the nose; chest not maned; black grey, varied and striped. Young: dark grey; face, gular and nuchal mane and end of tail black. Half-grown: blackish; crown grey.

*Antilope Gorgon*, H. Smith; Harris, W. A. A. t. 4.—*Cat. taurina,* Sundev., not Burch. or Smith.—*Catoblepas Gorgon* or *Gorgon fasciatus,* Gray, Knows. Menag. 20. t. 19. f. 2, young.

Inhabits S. Africa. Brit. Mus.

Colonel H. Smith has figured a pair of horns which were in Mr. Brookes's Museum under the name of *C. Brookesii* (t. 201. f. 1). He thinks it is also probable that *Bos Pegaseus* (H. Smith, G. A. K. t. 204, from a drawing of Prince Maurice's) is a species of this genus (H. Smith, Jard. Nat. Lib.).

5. The **Bovine Antelopes** have the nose moderately broad, with a moderate or small, bald, moist muffle; the grinders are rather small, without supplemental lobes, the central cutting-teeth enlarged at the end.

29. **Boselaphus**; *Bubalis,* Licht., Ogilby; *Acronotus,* H. Smith; *Bubalus,* A. Smith; *Alcelaphus,* Blainv.; *Buselaphus,* Ray.

Horns lyrate, end suddenly curved at a nearly right angle, thick at base, on the upper edge of the frontal bones; nose moderately broad, cervine; muffle moderate, bald, moist; tear-bag covered with a tuft of hair. Females: teats two.

1. **Boselaphus Bubalis.** The **Bubale.**

Pale brown in early uniform; rump like back.

*Antilope Bubalis,* Pallas.—*Capra Dorcas,* Houttayn, t. 24. f. 3.—*Buselaphus Caji,* Ray.—*Bubalis Mauretanica,* Ogilby; Sundevall.—*Acronotus Bubalis,* H. Smith.—*Bubale,* F. Cuv. Mam. Lith. t. .—*Cervine Antelope,* Penn.—*Boselaphus Bubalis,* Gray, K. M. 20. t. 20. f. 1, young.

Inhabits N. Africa. Brit. Mus.

*Var.* 1. Uniform pale brown; with a dark brown streak down the outer side of the front of the fore-legs, like the streak on the leg of the *Lecama* or *Harte beest* from South Africa, which is not generally found in this species. This skin, without a head or hoofs, was brought by Mr. Frazer to the British Museum, from Tunis; it probably indicates a third species, or perhaps this streak is only marked in the very adult or fully-coloured specimens.

2. **Boselaphus Caama.** The **Lecama or Harte beest.**

Grey brown; dorsal line, streak on face, outer side of limbs black; large triangular spot on the haunches whitish.

*Antilope Caama,* Cuv. D. S. N. ii. 242 (1816); Harris, W. A. A. t. 7; A. Smith, Illust. Z. S. A. t. 31.—*A. Bubalis,* Licht.; Erxleb.

291.—*Acronotus Caama*, H. Smith, G. A. K. t. 197.—*A. Dorcas*, Thunb.; Sparm. K. V. Hand. 1779, t. 5.—*Bubale*, Buffon, H. N. xii. t. 38. f. 2; Supp. iv. t. 15.—*Caama*, Cuvier, Menag. t.  .—*Senegal Antelope*, Penn. Synn. 38.—*A. Senegalensis*, Cuvier, Dict. Sci. Nat., from Pennant.—*A. Koba*, Erxleb. Syn. 293, from Pennant.—*Boselaphus Caama*, Gray, Knows. Menag. 20. t. 20. f. 2, young.

Inhabits S. Africa. Brit. Mus.

Pennant figures the head and horns of this species under the name of *Senegal Antelope*, and erroneously refers to Buffon's figures of the horns of the *Koba* as representing the species, which lead to some confusion; for the *A. Senegalensis* (Cuvier, Dict. Sci. Nat. ii. 235) is an abbreviation, and *A. Koba* (Erxleben, Syn. 293) is a translation, of Pennant's description of this species. Pennant's specimen is said to come from Senegal, but he describes the nuchal line and the knees as black, and the figure indicates the dark colour on the face of the Cape species.

### 30. DAMALIS; *Damalis acronotus*, sp. H. Smith; *Bubalis*, sp. Sundev.

Horns lyrate, diverging, subcylindrical; nose moderately broad, cervine, with a small, bald, moist muffle between and below the nostrils; tear-bag exposed: females, teats two.

* *Horns recurved above, diverging from the base; face dark in front.*

**1. DAMALIS LUNATUS. The SASSAYBY.**

Rufous glaucous, outer sides of the limbs dark.

*Antilope lunata*, Burchell, Trav. ii. 334, 335. fig.  .—*Damalis* (*acronotus*) *lunatus*, H. Smith, G. A. K. t. 198; A. Smith, Zool. S. Afr. t. 31; Harris, W. A. A. t. 8.—*Bubalis lunata*, Sundev.—*Sassaybi*, Daniel, Afr. Scenery, t.  .—*Damalis lunatus*, Gray, Knows. Menag. 21.

Inhabits S. Africa. Brit. Mus.

** *Horns regularly lyrate, nearly parallel at the base, then diverging, and approaching at the tips; face black marked; tear-bag moderate.*

**2. DAMALIS SENEGALENSIS. The KORRIGUM.**

Reddish grey; front of face from nose to occiput, a small spot behind the eyes, a small streak above the angle of the mouth, and streak on outside of the limbs above the knees, and tuft of the tail, black. Very young: uniform pale brown, without any dark marks.

*Antilope and Damalis* (*acronotus*) *Senegalensis*, H. Smith, G.A.K. v. t. 199. f. 3.—*Antilope Koba*, Children, in Denham and Clapperton's Travels, not Erxleben.—*Bubalis Koba*, Sundevall.—*B. lunata*, Sundev. Act. Stockh. 1842, 201, 243, not Burchell.—*A. Corrigum*, Ogilby.—*Damalis Senegalensis*, Gray, Knows. Menag. 21. t. 21.

Inhabits W. Africa; Gambia River, Macarthy's Island; called *Yonga* or *Yongah* by the Joliffs, and *Tan Rong* by the Mandingoes, Mr. Whitfield. Brit. Mus. Senegal? Sennaar. Mus. Stockholm.

In Denham and Clapperton's Travels I regarded this species as the *Koba* of Buffon, and H. Smith and Dr. Sundevall are of the same opinion: but on comparing the six pairs of horns of this species which I have been able to examine with Buffon's figure and descriptions, I find them all longer and much thicker at the base than Buffon describes them; the thinner (a female?) being 7 and the others 9 or 9½ inches in circumference, while that which Buffon described is only 5 inches. The rings are also more elevated, and reach nearer to the top than in Buffon's figure. All the characters lead me to believe that the horns figured as those of the *Koba* by Buffon belong to *Damalis Pygarga*. They afford very good venison.

Colonel Hamilton Smith, in 'Griffith's Animal Kingdom,' described and figured the heads brought home by Messrs. Denham and Clapperton as *A. Senegalensis*, but they are different from the one so called by Cuvier. Mr. Ogilby, in the 'Proceedings of the Zoological Society' (1826, 103), proposed to call these heads, *A. Corrigum*.

Under the name of *Antilope Koba*, Schinz (Syn. Mam. ii. 407) combines the *A. defassa*, Rüppell, *Damalis Senegalensis* and *Antilope adenota*, H. Smith, the *Koba* of Buffon, and the *Antilope Koba* or *Caama* of Erxleben.

*** *Horns regularly lyrate, parallel at the base; face of adult white.*

3. Damalis Pygarga. The Bonte Boc.

Purple red, outside of limb dark; rump and face white: *fawn* pale yellowish brown.

*Antilope Pygarga*, Pallas.—*Bonte Boc* or *Pied Antelope, Gazella Pygarga*, Harris, W. A. A. t. 17.—*Bubalis Pygarga*, Sundev.—*A. Dorcas*, Pallas.—*Antilope* (*Gazella*) *Pygarga*, H. Smith.—*Damalis Pygarga*, Gray, Knows. Menag. 21. t. 20. f. 3, young; t. 22. f. 2 & 3, adult.

*Half-grown*, face whitish.

*A. personata*, Wood, Zool. Journ. ii. t. .

Inhabits S. Africa. Brit. Mus.

Male: bright purple red, face whitish, dark-edged, with a dark-edged white streak to between the horns; legs whitish, upper and lower part brown varied; temple and upper part of the throat whitish; rump to above the tail pure white; tear-bag round, distinct, moist. The female is similar, but the throat and under part of the body are white. These animals are often brought to the Cape market for food.

4. Damalis albifrons. The Bless Bock.

Purplish red; face and back of thighs white; rump like back.

*Bless bok* or *Antilope albifrons*, Burchell, Trav. ii. 335?; Harris, W. A. A. t. 21.—*Bubalis albifrons*, Sundev.—*Damalis albifrons*, Gray, Knows. Menag. 22. t. 22. f. 1, half-grown.

Inhabits S. Africa.

A half-grown specimen was darker, with a pale spot between the horns, separated by a dark spot from the white on the face; the temple was white, with a white spot; the legs had a brown stripe down the outer side of the front; and the throat and rump brown, the latter without any white spot.

Dr. Burchell, when speaking of the *Bless bock*, proposed to call it *A. albifrons*, as the name *Pygarga* has been used for both the *Springer* and the *Bless bock*; but it is not certain if he intended by *Bless bock* this or the preceding species. Captain Harris's figure shows the distinction of the species.

**** *Horn unknown.*

5. Damalis? Zebra. The Doria.

Bright golden brown, with numerous black cross bands narrowing at the sides; outer sides of fore and hind legs dark.

*Antilope Zebra*, Gray, Ann. Nat. Hist. 1836.—*A. Doria*, Ogilby, P. Z. S. 1836, 121; Frazer, Z. T. t. .—*A. Zebrata*, Robert.—*Viverra Zebra*, Whitfield's MSS.—*Cephalophus*? *zebra*, Gray, Cat. Mam. B. M.—*Damalis*? *zebra*, Gray, Knows. Menag. 22.

Inhabits W. Africa; Gambia. Brit. Mus.

Skins without head and feet are alone known; they are brought down by the negroes. In the Catalogue of the Mammalia in the British Museum I have referred this species with doubt to *Cephalophus*. Mr. Ogilby (P. Z. S. 1836, 121) thinks it should be referred with the Harness Antelopes to *Calliope*. I am inclined, on account of the dark mark on the outside of the limb, to think it belongs to the genus *Damalis*. Mr. Whitfield believes it to be a species of *Viverra*.

## THE STREPSICERES.

The animals of this family are peculiar as being the only hollow-horned or Bovine Ruminants which are marked with white stripes and spots. The bands are not very distinct in the *Impoofo* or *Eland*, but they are easily to be observed in the female, if it is looked at obliquely, which was brought home by Burke, and presented to the British Museum by the Earl of Derby. Their nostrils are near together in front. They have four teats in a small udder. The horns generally incline backwards from their base; the skull, which somewhat resembles that of the Deer, has a rather small nasal opening, no suborbital pit, and only a small suborbital fissure.

Colonel H. Smith forms of the larger species three of his four subgenera of *Damalis*: he places the smaller kinds as a subgenus (*Tragelaphus*) of Antelopes.

Prof. Sundevall placed the genera I have here brought together in two different families; the genus *Portax* with the *Bovina*, and the others in the *Sylvicaprina*, or True Antelopes.

The African genera have large heavy horns, only the rudiments of a tear-bag, and their limbs are nearly equal; they have no supplementary lobes to the grinders, and the central cutting-teeth are enlarged above.

A. *The nose hairy, cervine, with only a small moist naked space between the edges of the nostrils, and a narrow streak on the upper lip; the body is large, heavy; the neck is maned.*

### 1. STREPSICEROS, H. Smith; *Calliope*, Ogilby; *Tragelaphus*, sp. Blainv.

Horns large, heavy, spirally twisted, keeled in front; tear-bag a naked space; throat with a central, linear mane: female hornless.

1. **STREPSICEROS KUDU.** The EECHLONGOLE or KOODOO.

The horns diverge from the line of the forehead, and have two twists; the calf is marked like the adult.

*Antilope Strepsiceros*, Pallas.—*Damalis* (*Strepsiceros*) *Strepsiceros*, H. Smith, G. A. K.—*A. Tendal*, Rüppell, Abyss. 22; Fischer, Syn. 475.—*Strepsiceros Kudu*, Gray, Cat. B. M.; Knowsley Menag. 26. t. 24. f. 2, young.—*S. Capensis*, Harris, W. A. A. t. 20.—*S. excelsus*, Sundev.—*Striped Antelope*, Penn.—*Comdoma*, Buffon, H. N. xii. t. 39; Supp. vi. t. 13.

Inhabits S. Africa. Mus. Brit.

*Var.* Smaller.

Inhab. Abyssinia. Mus. E. India Company, adult. Mus. Frankfort, adult and young.

### 2. OREAS, Desm.; *Boselaphus*, sp. Blainv., Gray; *Damalis* (*Boselaphus*), sp. H. Smith; *Damalis*, Sundev.

Horns large, erect, slightly curved, with a spiral keel; throat with a longitudinal, crested dewlap; hoofs narrowed in front. Female with smaller, thinner horns.

I formerly adopted the name of *Boselaphus*, which Blainville had used for the genus, but Ray had previously applied this name to the *Bubale*, and Desmarest has formed a subgenus specially for it under the name of *Oreas*.

1. **OREAS CANNA.** The IMPOOFO or ELAND.

Pale brown; throat and beneath whitish.

*Antilope Oreas*, Pallas.—*Damalis* (*Boselaphus*) *Oreas*, H. Smith, G. A. K. t. 200.—*A. Oryx*, Pallas, Misc. 9.—*D. Boselaphus Canna*, H. Smith, G. A. K. t. 181. f. 5, horn ♂.—*Oreas Canna*, Gray, Knows. Menag. 27. t. 26, 27.—*Coudou*, Buffon, H. N. xii. t. 46 *b*.—*Canna*, Buffon, Supp. iii. t. 12.—*Eland*, Kolbe, Sparmann, K. Vet. Handl. 1779, t. 8; Harris, W. A. A. t. 6; Daniel, Afr. Scen. t. .

Inhabits S. Africa; Cape of Good Hope (*Sparmann*). Brit. Mus.

This Antelope has much the character of the Oxen, and Dr. Burchell informs me that it is the best food of any of the genus at the Cape, being the only one which is moist and has any fat intermixed with the muscle; the flesh of the others is dry and hard. At Knowsley it breeds with the facility of domestic cattle, but they are ravenous feeders, and appear liable to an epidemic.

It should be remarked that the skin of the specimen shot by Burke at the Cape (the female especially) shows several pale whitish cross-bands on the hinder half of the body, similar to the streaks on the *Koodoo*, showing the affinity of this animal to that species; but I could not observe these bands in the living specimens at Knowsley Park.

2. **OREAS DERBIANUS.** The GING-E-JONGA.

Pale reddish brown; front of the face, the neck, the front part of the under side, a spot on the front and hinder side of the upper part of the fore-leg, the dorsal streak, dark black; the belly, the front and back edge of the upper part of the legs and under side of tail whitish; a broad half-collar in front of the shoulder, narrowed above; fourteen or fifteen narrow, waved, perpendicular streaks on each side of the body white; withers with intermixed black hairs: female, throat dark brown; crown reddish brown.

*Boselaphus Derbianus,* Gray, Ann. and Mag. N. Hist. xx. 286; Silliman's Amer. Journ. v. 279.—*Oreas Derbianus,* Gray, Knowsley Menag. 27. t. 25.

Inhabits W. Africa; river Casaman. Called *Ging-e-jonga.* Mr. Whitfield. Brit. Mus. Imperfect skin of male and female, and horns.

B. *The nose bovine, with a large coriaceous moist muffle, and a narrow bald space on the upper lip. The animals have very slender, elegant legs; small hoofs and false hoofs; conical, subangular horns; with an oblique, indistinct keel.*

3. **TRAGELAPHUS;** *Antilope* (*Tragelaphus*), Blainv., H. Smith.

Horns conical, subangular; tear-bag distinct; nape and back with a more or less distinct mane: they are brown; with spots on haunches, crescent on chest, and inside of legs white, and a dark dorsal stripe.

* *Face with a curved band between the eyes; horns large; back cross-banded.* Euryceros.

1. **TRAGELAPHUS EURYCEROS.** The EURYCEROS.

Head pale brown; broad band before the eyes, and two large spots on cheeks, chin and front of upper lip white; horns elongate, thick, scarcely bent forward at the tip; throat with long black hairs.

*Antilope Eurycerus,* Ogilby, P. Z. S. 1836, 120.—*A.*, n. sp., Afzelius, N. Act. Upsal. vii. 269. t. 8. f. 3; H. Smith, G. A. K. v. 361. —*Tragelaphus Euryceros,* Gray, Knows. Menag. 27. t. 23. f. 1, horns.

Inhabits W. Africa. Horns in Brit. Mus. and Zool. Soc.

2. **TRAGELAPHUS ANGASII.** The INYALA.

Black; back with a dorsal streak and four or five bands on each side; head blackish; narrow band before eyes, two small spots on cheeks, front of upper lip and chin white; forehead and feet bay; throat with a mane of long rigid blackish hair; horns rather slender, elongate, rather bent forward at the tip; female bay, with many white bands.

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